# THE FORKS (1989) PILOT PUBLIC ARCHAEOLOGY PROJECT: RESEARCH REPORT

## EXCAVATIONS AT 21K (FORT GIBRALTAR I)


by

**Sid Kroker**
**Barry B. Greco**
**Arda Melikian**
**David K. Riddle**

**Edited by Leigh Hambly**



Manitoba
Culture, Heritage and Recreation

Environnement Canada
Environment Canada

THE FORKS
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# ABSTRACT

During the summer of 1989, funding from Canadian Parks Service, The Forks Renewal Corporation and Historic Resources Branch of Manitoba Culture, Heritage and Recreation permitted the implementation of an eight-week Pilot Public Archaeology Program. The program provided a "hands-on" archaeological experience for nearly 450 individuals, through general public participation and school program components. In addition, a total of 41,439 visitors came to watch "archaeology-in-action."

The project was conducted by a staff of professional archaeologists, assisted by a volunteer coordinator and two tour guides. A ratio of two volunteers for each professional was maintained, both in the excavation component and the laboratory component. This ratio resulted in close supervision and the maintenance of professional standards. The enthusiasm and intense concentration displayed by the volunteers resulted in work of very high quality.

The excavation was located at the site of the 1984 project conducted by Canadian Parks Service. The 1989 project uncovered evidence of five major events. The four cultural events, documented by stratigraphy and recovered artifacts, were the Railway Period (1888-1988), the construction of the B&B Building (1888/89), the Experimental Farm (1836-1848) and the Fort Gibraltar I Period (1810-1816). A major natural event, the flood of 1826, was identified in the soil stratigraphy.

More than 22,000 artifacts were recovered, catalogued and analyzed. The artifacts range from recent railroad material to trade beads to faunal remains.

Due to the shortness of the field season and the educational focus, the pace of excavation was not rapid. The lower portions of the Fur Trade Period strata were not excavated and it is recommended that a continuation of the project proceed at the same location.

## GOALS AND OBJECTIVES

The Forks (1989) Pilot Public Archaeology Project had two distinct foci, each with its own specific goals and objectives. The primary focus was archaeological research — to attempt to answer some of the questions that arose out of the 1984 project at the Fort Gibraltar I location. In addition, the project was envisioned as an interpretation vehicle, wherein members of the public and the school system could participate in the 'hows' and the 'whys' of archaeology. The second focus, that of public education, had to be carried out in such a manner that the scientific integrity of the research was not affected.

The goals of the research component of the project were:

1. to obtain artifactual and stratigraphic evidence that would confirm the identification of Fort Gibraltar I;

2. to obtain structural evidence concerning the buildings and/or palisades of Fort Gibraltar I, in order to accurately determine the location of the fort;

3. to obtain data that would help elucidate the complex soil stratigraphy at the site;

4. to obtain data concerning the events that occurred at the location, after the establishment of Fort Gibraltar I;

5. to facilitate inter-disciplinary investigations into the natural history of The Forks;

6. to undertake limited exploratory excavation to determine the presence of Pre-Contact occupations at the location.

The goals of the public component of the program were:

1. to fulfill the public mandate of historic theme interpretation at The Forks for the community and visitors;

2. to interpret the role of archaeological field work in the interpretation and development of The Forks;

3. to provide a hands-on experience for interested members of the public in conducting archaeological studies under the supervision of professional archaeologists;

4. to continue research of the rich historic part of The Forks;

5. to demonstrate tangible evidence of the history of The Forks as a meeting place and provide a link between the past, present and future;

6. to help make the public aware of the historic significance of The Forks and its *in situ* resources;

7. to provide an opportunity for school groups to use the archaeology project as part of their social studies curriculum;

8. to involve avocational groups such as the Manitoba Archaeological Society, the Manitoba Historical Society and the St. Boniface Historical Society in heritage programming at The Forks;

9. to evaluate the effectiveness/feasibility of this pilot project as a basis for an ongoing public archaeological program in the future;

10. to determine the appropriate mechanisms for future public archaeological programming at the site;

11. to help involve the community at large in heritage programming at the site;

12. to help celebrate the special aspects and *international* significance of the site;

13. to help make downtown Winnipeg a focus of attention for residents of the city and its environs.

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As one of the last official acts as Director of the 1989 project, the senior author would like to express his appreciation to the members of his staff; stalwart individuals who worked extra hours to make a success of the project and interacted with thousands of visitors with cheerfulness, equanimity and enthusiasm.

Finally, but definitely not least, the staff of the 1989 Pilot Public Archaeology Project wish to thank the enthusiastic volunteers and the interested members of the public who made this a most rewarding archaeological experience.

# 1.0 INTRODUCTION

The concept of a public archaeology program is not unique to Winnipeg. Such programs occur throughout the world, and in many and various formats. In some programs the public is encouraged to watch professional archaeologists at work; in others, the public participates. Most of the participatory public projects require a volunteer commitment of a minimum of one week and the payment of a fee. These projects have been located in the United States, England, Israel and several other countries.

## 1.1 Manitoba Antecedents

Since 1961, the Manitoba Archaeological Society has conducted excavations under the supervision of professional archaeologists and experienced avocationists, enabling Society members to participate. During the late summer of 1988, the Society conducted a weekend "dig," open to all interested individuals, at the site of the Canadian Parks Service excavations at North Point, in The Forks National Historic Site. The 30 available positions were filled quickly, and many people put their names on a waiting list. The two day project demonstrated that, among the general public, there were many individuals who wanted the opportunity to experience "hands-on" archaeology.

In addition, during the various archaeological projects undertaken at The Forks during 1988, many people visited the site. Although the projects were not publicized, hundreds of individuals came to The Forks to observe "archaeology-in-action," braving the inconveniences of a major construction site. During conversations with The Forks Renewal Corporation (FRC) Site Archaeologist, many people indicated a desire to enhance their knowledge of Manitoba archaeology.

## 1.2 Planning for the 1989 Project

Based upon the indication that many members of the public were interested in experiencing "hands-on" archaeology, the FRC Site Archaeologist proposed that The Forks Renewal Corporation take the lead in advancing the concept of a public archaeology program. The initial document (February 1989) explored the possibility of involving Canadian Parks Service and Historic Resources Branch, Manitoba Culture, Heritage and Recreation. Five locations for the project were suggested. Each location was evaluated on the scope of adjacent activity, potential heritage resources and accessibility of operational resources (water, electricity, etc.).

Independently, staff at Canadian Parks Service were developing a proposal for a public archaeology program. The idea had been broached in the report on the 1984 archaeological investigations at The Forks (Priess *et al.* 1986: 306-311). Internal documents, developed during 1987 and 1988, indicate that the archaeological staff were actively planning for an interpretive archaeological program at The Forks National

Historic Site. During February 1989, discussions between the Chief, Archaeological Services, Canadian Parks Service and the FRC Site Archaeologist revealed common goals. Historic Resources Branch, Manitoba Culture, Heritage and Recreation was approached, as it was felt that this type of program fell within the department's mandate. A second reason for involving the province was that Historic Resources Branch is charged with the responsibilty of administering the Manitoba Heritage Resources Act. The provisions of the Act apply to lands owned by The Forks Renewal Corporation, and the participation of Historic Resources Branch would ensure that both federal and provincial jurisdictional agencies were represented.

Senior staff of the three agencies approved, in principle, the concept of a public archaeology program to be conducted at The Forks during the summer of 1989 (Figure 1). The FRC Site Archaeologist, the Chief of Archaeological Services (Northern and Prairie Region, Canadian Parks Service) and the Chief (Archaeology Section, Historic Resources Branch, Manitoba Culture, Heritage and Recreation) held subsequent planning meetings. By May, a finalized proposal for the Pilot Public Archaeology Program had been compiled and submitted for approval by the three agencies. This proposal recommended that the project take place adjacent to the 1984 excavations conducted by Canadian Parks Service (Priess *et al.* 1986) (Figure 3). A fully-detailed description of the planning processes can be found in this document's companion report, *The Forks (1989) Pilot Public Archaeology Program: Administrative Report.*

### 1.3 Project Funding and Support

The project was a joint cooperative venture with funding derived from Canadian Parks Service (CPS), The Forks Renewal Corporation (FRC) and Historic Resources Branch, Manitoba Culture, Heritage and Recreation (HRB). Support was provided through monies and seconded personnel. The contributions from Historic Resources Branch and The Forks Renewal Corporation were administered by FRC. The CPS contribution was administered by Quaternary Consultants Ltd. (QCL) under a contract arrangement. Additional support was received from Winnipeg Core Area Initiative (CAI) and the Manitoba Archaeological Society.

In addition to direct project support, individual staff members of the various agencies (CPS, HRB, FRC, QCL) provided on-going assistance for the duration of the project. Members of the Manitoba Archaeological Society were helpful throughout the summer. Volunteer participants of the project contributed wherever and whenever they could, giving supplies such as used window screens, staffing the information kiosk and acting as additional tour guides.

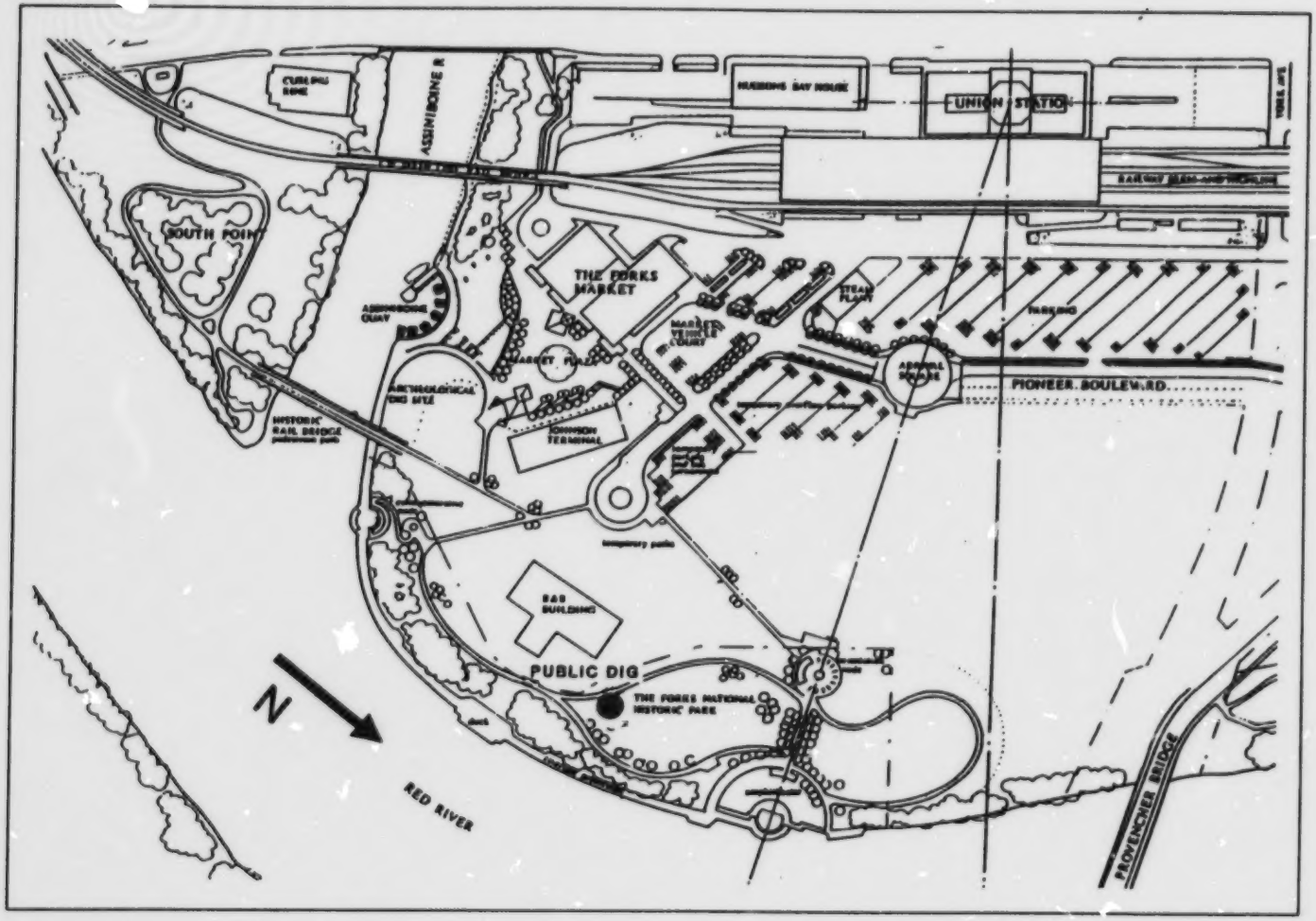



Figure 1: Map of The Forks (Courtesy of The Forks Renewal Corporation)

## 1.4 Project Staffing

The project employed 12 people. The personnel and their funding sources are delineated in the following table (Table 1). Greater detail concerning job descriptions and duties of each staff member can be found in the Administrative Report. Their roles are briefly described below.

**Director:** responsible for the overall administration of the project.

Volunteer Coordinator: responsible for booking and scheduling all participating individuals and groups.

**Field Supervisor:** responsible for all aspects of the excavation component—supervising excavation personnel and volunteers; excavating procedures, etc.

**Laboratory Supervisor:** responsible for all aspects of the laboratory component—supervising laboratory personnel and volunteers; preparing and identifying artifacts; computer cataloguing, etc.

**Data Management Officer:** responsible for photographing project activities (features, units, volunteers, etc.); staffing informational kiosk; maintaining field data records.

**Field Assistants(3):** responsible for day-to-day supervising and instructing of volunteers.

**Laboratory Assistant:** responsible for day-to-day supervising of volunteers; computer data entry.

**Tour Guides (2):** responsible for providing visitor information to the general public.

| POSITION | NAME | FUNDING SOURCE |
|---|---|---|
| Director | Sid Kroker | FRC Secondment |
| Field Supervisor | David Riddle | HRB Secondment |
| Field Assistant | Donalee Deck | CPS Grant |
| Field Assistant | Arda Melikian | CPS Grant |
| Field Assistant | Steve Lundin (1/2) | CPS Grant |
| Field Assistant | Paul Speidel (1/2) | CPS Grant |
| Laboratory Supervisor | Barry Greco | FRC (HRB Grant) |
| Laboratory Assistant | Sharon Thomson | HRB Secondment & FRC (HRB Grant) |
| Volunteer Coordinator | Karen Lawlor | FRC (HRB Grant) |
| Data Management Officer | Peter Walker | HRB Secondment |
| Tour Guide | Garth Stonechild | FRC & CAI |
| Tour Guide | Vernon Anderson | FRC & CAI |

Table 1: Staff and Funding Sources

## 1.5 Scope of the Public Project

The public phase of the project began on July 27; the staff had spent the previous week setting up the operation. Members of the general public participated until September 11. As the project was in operation five days per week (Thursday through Monday), this provided 34 days during which 219 people received "hands-on" experience. The weeks of September 12-16 and September 19-23 were reserved for school programming. Ten classrooms of Grade 5 and Grade 8 students, comprising 209 students, with teachers, aides and accompanying parents, participated in all aspects of the program. During the week of September 26-October 1, 14 students of the University of Manitoba Introductory Archaeology class (Dr. G. Monks) participated on an individual basis.

Throughout the summer, the project had a high degree of visibility in the media. This promotion resulted in large numbers of people visiting the site to observe the operations, listen to the tour guides, pick up brochures detailing the project (available in English, French, Cree and Saulteaux) and talk with professional archaeologists. From July 27 to October 10, a total of 41,439 people visited the site. Demographic breakdown and further details can be found in the Administrative Report.

## 1.6 Summary

From an educational and public involvement point of view, the project was a resounding success. More than 400 people, ranging in age from 7 to 87, experienced "hands-on" archaeology. Over 40,000 people took the opportunity to view an on-going archaeological project, thereby enhancing their knowledge of the archaeological process and the history of Western Canada, as exemplified by the discoveries at this project. Thousands more were informed of the operations through print and electronic media.

From an archaeological research point of view, the project recovered data from four cultural events that occurred within the narrow confines of the excavation unit: the Railroad era (1888-1988); the construction of the B&B Building (1888/89); the Hudson's Bay Company Experimental Farm (1836-1848); and Fort Gibraltar I (1810-1816). Evidence of natural events, such as the 1826 flood, was discovered. These data are presented in this report, along with current interpretations. Where possible, the information is linked to that which was recovered during the 1984 excavation at this location by archaeologists of Canadian Parks Service. The current interpretations are regarded as tentative because of the limited size of the present excavation, the complexity of the stratigraphy and the fact that the two projects were not directly linked by excavation of contiguous units. The interpretations are seen as a baseline which, in conjunction with the 1984 data, will be augmented through further operations.

## 2.0 HISTORICAL BACKGROUND

Recent archaeological work at The Forks has shown human occupation of the site area dates as far back as 6000 years ago (FRC n.d.). Only recently has the area become accessible for archaeological investigation. Prior to 1988, Canadian National Railways was the owner of the area. With the planned transfer of the area to Canadian Parks Service and The Forks Renewal Corporation, archaeologists gained access to one of the most important river junctions in Canada.

This brief historical background is included here, primarily, to provide sources for further reading. It is presented following the format of FRC (1988). Additional information, provided by Coutts and Payment (1988) and Guinn (1980a), is incorporated into this format. The recent information provided by archaeological excavations in The Forks area has allowed an expansion of the section detailing the occupation of the area by the first inhabitants.

### 2.1 The First Inhabitants

Little archaeological investigation has been completed at The Forks. Therefore, much of the information on the area must come from other sources.

About 9,000-10,000 years ago, Glacial Lake Agassiz drained (Fenton *et al.* 1983; Last and Teller 1983; Teller and Thorleifson 1983) from the Winnipeg area. The region would have been colonized by both plants and animals and, following the new food sources, by people. The first occupation of The Forks likely occurred shortly after the lake waters receded. The people were bison-hunters who followed the herds into this area from the south and the west (Pettipas and Buchner 1983: 444).

The recession of the glacial waters was followed by a long-term warming trend in the environment known as the Altithermal. The Altithermal has been variously dated: 7000-2500 B.C. with the maximum temperatures at 3500 B.C. (Last and Teller 1983); 4000-1000 B.C. with a maximum at about 2000 B.C. (Ritchie 1983: 167); 6000-2000 B.C. with the warmest period about 5200 B.C. (Ashworth and Cvancara 1983; Webb *et al.* 1983: 162). The variations in time periods occur as a result of researchers working in different areas. Not all locations experienced the same climatic shifts at the same time. This period brought drought conditions and likely caused the herds of bison to abandon the central prairies. With a change in the availability of the bison, human populations would have relied on a more varied diet of small game, fish and plants. Habitation sites would be close to permanent sources of water.

By 3000 B.C. groups of people who originally lived to the southeast of Manitoba began to move into The Forks region. They exploited a wide range of resources. This period, from 3000 B.C. to about A.D.1, is known as the Archaic Period. Several groups of people who followed this way of life were likely inhabitants at The Forks. A major

campsite of this period was discovered in 1988 (FRC 1989). Further work will be needed to detail the extent of their occupation at The Forks.

Post-A.D. 1, an important technological innovation was introduced into southern Manitoba from the east. A forest-adapted culture in southeastern Manitoba adopted the coil technique for making ceramic vessels. This style has been called 'Laurel' (Manitoba Culture, Heritage and Recreation 1989). It is found throughout the southern Boreal Forest and from the Red River to the Manitoba/Ontario border. In some areas, the 'Laurel' culture lasted until A.D. 1000. In southern Manitoba, a new pottery manufacturing technique, with a very different decorating style, serves to denote the 'Blackduck' culture. Vessels of this style are the earliest to be recovered at The Forks (Priess *et al.* 1986; QCL 1988, 1989; FRC 1989, n.d.; Tisdale 1990, *pers.comm.*). Several radiocarbon dates were obtained from charcoal and animal bone associated with these ceramics. These dates, published in the above reports, range from A.D. 510 to A.D. 1450. Current evidence indicates that the 'Blackduck' ceramic tradition continued until the advent of the Fur Trade. Another ceramic tradition, the 'Selkirk' tradition, developed in eastern Manitoba around A.D. 1000. The 'Selkirk' peoples may also have used this site, but lived primarily to the north and east of The Forks area; several sites in the Red River area have produced 'Selkirk' ceramics (FRC 1988: 39).

Unfortunately, no firm information is available to link groups of the late Pre-Contact period with those groups who were in the area when the first recorded Europeans visited the area in A.D. 1737. During the period immediately preceding the Fur Trade Period, Cree, Ojibwa/Saulteaux and Assiniboine groups considered the area of The Forks to be their territory.

## 2.2 Contact Period (1737-1821)

The Forks area was used during the 18th and early 19th centuries by several Native groups, by parties of explorers and by representatives of at least two fur trading companies. The occupations were usually temporary and short-term; few long-term occupations have been recorded and few descriptive records exist of these occupations.

La Verendrye, the first European to visit the area, noted Native camps at The Forks in 1737 and 1738. During his first visit, two villages of Assiniboine occupied the area, and in 1738 ten cabins of Cree were present. Fort Rouge was established somewhere in The Forks area by M. de Louviere, a compatriot of La Verendrye, in 1738 (Guinn 1980a:33). Disagreement exists as to where this site was located. Fort Rouge was abandoned by 1749. Subsequently, de St. Pierre had a winter camp at The Forks in 1752-3.

Following the European abandonment of the west after the fall of the French Regime in Canada, Bruce and Boyer established a winter camp (1781/82) in the area. In 1793, McKay reported a camp of Nor'Westers present. Alexander Henry, a partner in the North West Company, reported members of that company made regular use of The Forks area from 1800 to 1808.

By the turn of the 19th century, despite fears of attacks from the Sioux, several Metis had settled at The Forks and worked as commercial buffalo hunters for the North West Company (Guinn 1980a:24) (Coutts & Payment 1988:8).

In 1810-11, the North West Company established Fort Gibraltar I (the object of the 1984 and 1989 excavations) at The Forks as a provisioning post for obtaining pemmican. The post is described as consisting of nine buildings erected within a square 18 foot-high double bastioned palisade (Robertson 1816: 338). The arrival of the Selkirk Settlers in 1812, and the resulting conflicts between the North West Company and the Hudson's Bay Company/Selkirk Settlers, eventually led to the dismantling and burning of Fort Gibraltar I in 1816 by a group of Hudson's Bay Company men and Selkirk Settlers (FRC 1988:43-4). Just to the south of the original Fort Gibraltar, the North West Company began construction of Fort Gibraltar II in 1817. With the amalgamation of the two companies in 1821, the era of fur trade competition came to an end.

## 2.3 The Transition Period (1821-1870)

The post-amalgamation period saw further developments come to The Forks area. After its take-over by the Hudson's Bay Company, Fort Gibraltar II was renamed Fort Garry. Fort Garry declined in importance soon after its take-over by the Hudson's Bay Company as Lower Fort Garry was built, 30 km down the Red River, in 1832. The location of Lower Fort Garry was not optimum, however, and, in 1835, work began on its replacement, Upper Fort Garry, a limestone walled structure located to the west of the present FRC property (Loewen & Monks 1986: 23-26). The buildings at the first Fort Garry suffered major flood damage in 1826. After further damage in 1852, the structures were abandoned (Guinn 1980a: 87).

Also in this period, several attempts were made to establish an agricultural base at The Forks site. In 1836, a military-operated Experimental Farm (Figure 2) was created. This had failed by 1841, but was taken over by Captain Cary, who operated it until 1847. In 1848, a group of British Army veterans, the Chelsea Pensioners, were granted land outside of The Forks area. In 1858-60, British Army regulars were stationed at Upper Fort Garry. Both groups may have used the now-abandoned gardens and field of the Experimental Farm to grow crops for their own consumption.

A number of events occurred in the latter part of this period which would have major ramifications in the future of The Forks. In particular, the disappearance of the bison, which totally disrupted the lifeway of the Indians and Metis, eventually led to political action by the Metis and the Confederation of Manitoba within Canada in 1870.

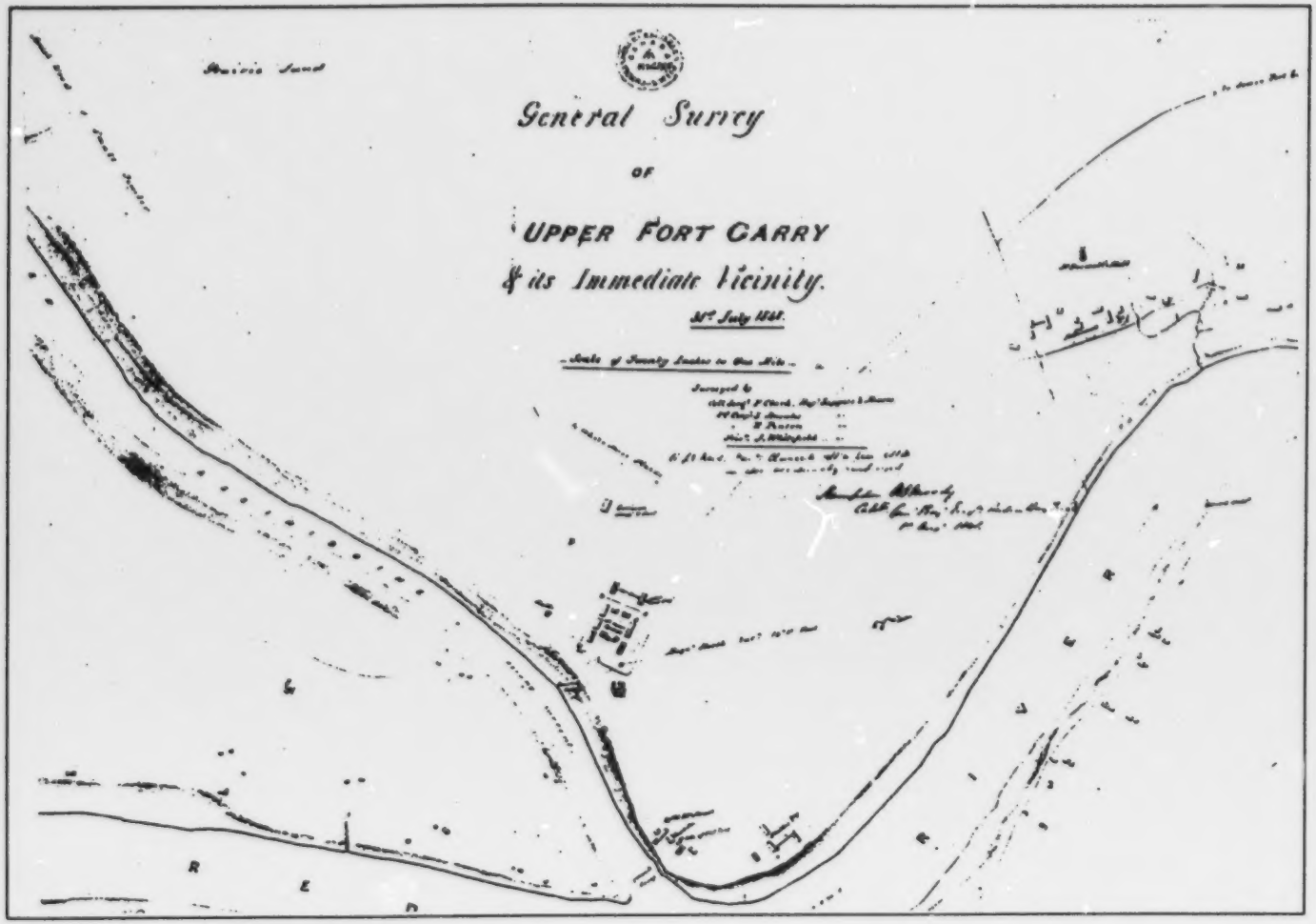



Figure 2: 1848 Map Depicting The Forks (Warkentin & Ruggles 1970: 193)

## 2.4 Industrialization and Immigration Period (1870-1888)

There was a major increase of immigration to Western Canada between 1870 and 1888. In 1872, two "immigration sheds" with detached cookhouses were built near the former location of Fort Gibraltar I. As well, on "the flats," a shanty town developed in the area of Fort Gibraltar I. The shanty town disappeared by 1884 and the immigration sheds by 1885. Both of these developments might prove their presence during future excavations at this site. Three industrial sites were also constructed in The Forks area between 1870 and 1888. Two were Hudson's Bay Company developments. The other was a private venture.

The private development was The Clarke and McLure Lumber Yard located in the central portion of The Forks. This establishment operated from 1876 to 1890.

One of the Hudson's Bay Company developments was a warehouse complex (Steamboat Warehouse or Warehouse #4), built on the bank of the Assiniboine River in 1872. In 1877, the structure was moved 120 feet back from the river and was demolished in 1895. The other company development was a large mill complex. Built in 1874, it consisted of nine buildings. It was demolished in 1907 (Guinn 1980a:142-3).

## 2.5 The Railway Period (1888-1988)

In 1888, a charter was granted to the Northern Pacific and Manitoba Railroad. That same year, 20 acres of land were sold to the railway, by the Hudson's Bay Company, for $10,000 (Guinn 1980a:135). The site of Fort Gibraltar I was located within these 20 acres. This property remained under railway control until the area was transferred to Canadian Parks Service and The Forks Renewal Corporation in 1988.

The Northern Pacific and Manitoba Railroad began construction of two buildings in 1889. A large repair shop and roundhouse were built north of the junction of the Red River. The roundhouse was demolished in 1926 but the repair shop, known today as the B&B Building, still stands. This structure is located just to the southwest of the 1984/1989 excavation areas.

For the past century, the railway was the major development in the central area of The Forks. The area of the excavation of Fort Gibraltar I was dominated by this railway development, either as an active area of railway work or as a dumping ground for the by-products of railway activities. It remained as such until the area was acquired for redevelopment in September 1988.

# 3.0 FORT GIBRALTAR I OPERATIONS 1989

## 3.1 Introduction

Since the 1984 excavation and backfilling at the Fort Gibraltar I location, major changes to The Forks area had occurred and the site surface surrounding the preliminary archaeological operations had been altered.

During these intervening five years, the transition from a former rail yard to a fully-developed National Historic Site had taken place. Under Canadian Parks Service jurisdiction, considerable landscaping, grooming and sodding had occurred in the area. Concurrent with the landscaping, fences, paths, gardens and stone monuments had been erected in the general area of the previous work. All evidence of the archaeological operations conducted in 1984 had been obliterated by this redevelopment. The areas west and south of the National Historic Site had remained undeveloped, although grading and surface clearing were ongoing during the 1989 field season in areas adjacent to the lands under Federal jurisdiction. Sodding of these areas occurred in September of 1989.

## 3.2 Operation Location and the 1984 Excavation

Ascertaining the location of the 1984 archaeological operations was of prime importance within the overall 1989 excavation strategy at Fort Gibraltar I. In consultation with Peter Priess, Canadian Parks Service archaeologist in charge of the 1984 excavations, measurements were taken from the north-east corner of the B&B Building standing to the south-west of the general site area on Forks Renewal Corporation property, and using maps produced after the 1984 season (specifically 21K-84-107D11 Sheet 1), the eastern perimeter of these earlier operations was approximated.

The 1989 plan called for the excavation to be laid out contiguous to the 1984 operations (Figure 3). Some overlap was planned so that individual excavation units from 1984 might be identified, allowing integration of data from the two projects.

To this end, a backhoe operator was engaged and a short trench was excavated. Based on the surface survey, it was expected that the trench would cut across the north-south axis of the eastern edge of the 1984 operation. This proved to be successful; the edge of the 1984 excavation was relocated with little difficulty. Since the 1984 excavation had been covered with Geotex fabric, and the backhoe operator was highly skilled in removing small amounts of fill, the fabric was uncovered with no damage to the underlying units. This initial trench was then widened to permit further access to the previous excavation units and make possible accurate identification of the location of the trench in relationship to the 1984 operations.

After hand removal of the fill atop the fabric, a portion of the Geotex was pulled back. The strings and nails, used to delineate the 1984 units, were present although no unit

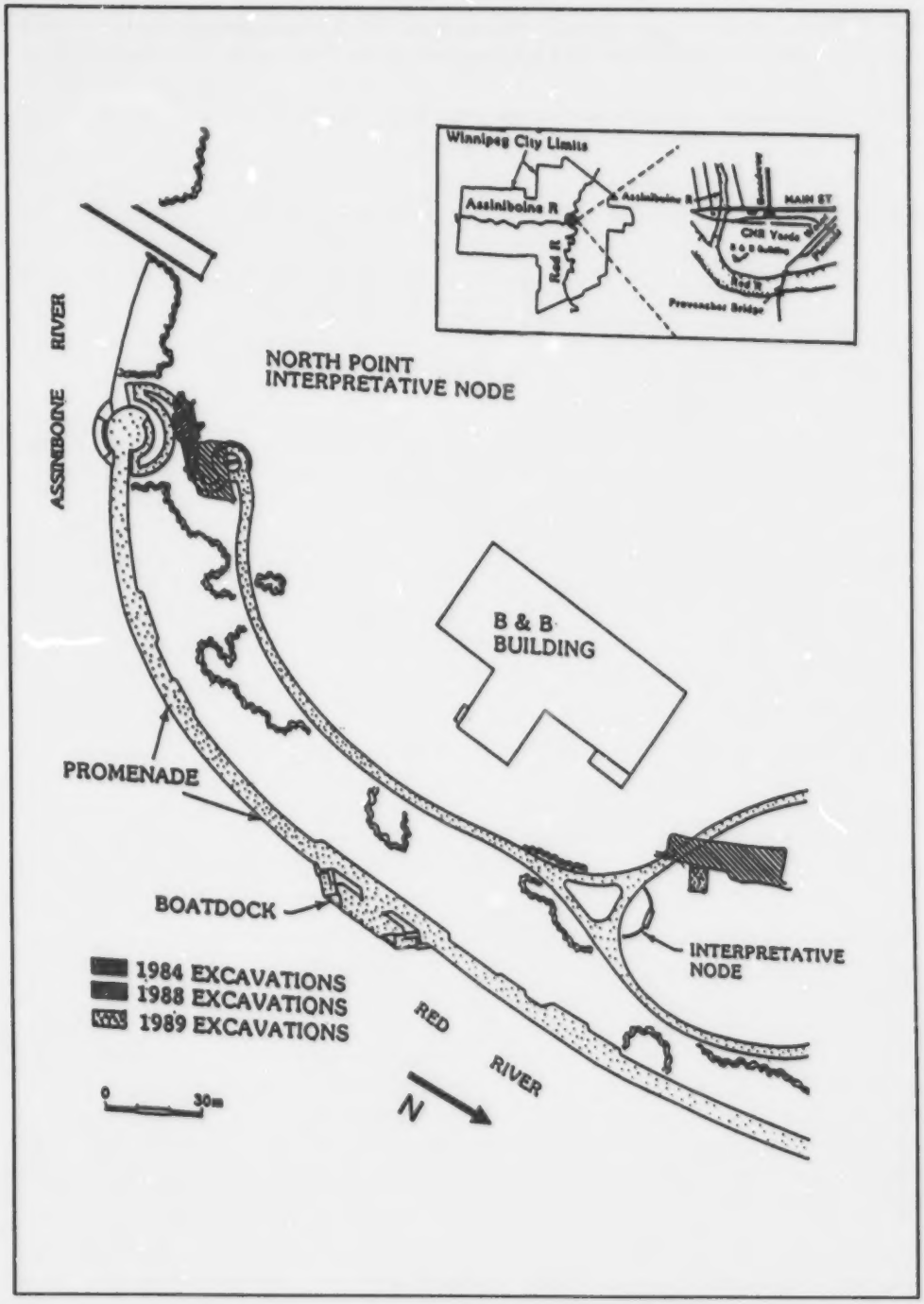



Figure 3: Map of Fort Gibraltar I Excavations
(adapted from Adams *et al.* n.d.)

identification could be immediately determined. With the orientation of the 1984 operations now re-established and the location of the 1989 work limited by some of the landscaping features previously noted, a rubber-wheeled Drott was engaged to remove the fill and overburden in the area designated for the 1989 Pilot Public Archaeology Project at The Forks.

### 3.3 Overburden Removal at 21K (Fort Gibraltar I)

The eastern part of The Forks had been a railway yard since the late 1880s and had been used as a dumping ground for ash, cinders and other debris. The fill was used first to level the area and raise it above annual flood level and later, to simply disperse the tons of ash and cinders produced by coal-fired steam generated power. The depth of this overburden was found to range between 1.25 m and 1.50 m.

The railway fill, at Fort Gibraltar I, was removed as a single archaeological operation. This work was identified as 21K50A99. All artifacts recovered during the fill and overburden removal were catalogued sequentially. Only selected diagnostic artifacts were retained from the recoveries made during the loading of the overburden and material into a dump truck. Bottles, earthenware jugs and ceramics were kept to provide a general sample of material from the operation. With few exceptions, however, all other artifacts—such as discarded rails, ties, window glass and masses of scrap metal—were loaded with the cinders into the truck and removed. The excavated overburden was stock-piled for re-use as in-fill for the excavation area at the end of the field season.

Except for a few anxious moments when the Historic Site's pressurized irrigation system was cut by the bucket of the Drott, the removal of the overburden and railway fill proved uneventful. The end result of the fill removal operation was a prepared excavation area roughly 6 m north-south and 9 m east-west dug to a depth of 1.25 m. A 0.25 m veneer of fill was left above the original buried ground surface to provide protection to the underlying archaeological deposits during further site preparation.

The unit had slightly inwardly sloping walls to prevent slippage of the unconsolidated cinders and fill into the excavation. Manitoba Workplace Safety and Health had been consulted to determine shoring requirements for the site. Although they placed no specific shoring requirements because of the shallow nature of the excavation, it was decided that, for other reasons, the walls of the unit should be covered. All walls were shored with pressboard and re-bar. This structure provided a valuable service as it prevented edge materials from falling into the unit, especially as the walls dried during the course of the summer. More important, these materials protected both the staff and the volunteers working at the site from the jagged edges of the cinders, wood and metal scraps protruding from the unit walls.

After the general sub-surface site preparation was completed, a datum point was prepared. The location was based on the north-east corner of sub-operation 21K6M(NE) of the 1984 excavation. It was felt that, by using this strategy, comparison between the two excavations would be simplified. Any final interpretation of the site,

which might be several seasons in the future, would benefit from this integrated approach.

Finally, the 1989 operation and sub-operation units were surveyed into the excavation area from north to south and east to west. The resulting floor plan for the entire site area consisted of sixty 1 m x 0.50 m sub-operations in the excavation area (Figure 4). The potential to add several more units on the western edge of the overall operation also existed, if time permitted. These units would join the work completed in 1984 with that undertaken in 1989.

### 3.4 Enclosing the Excavation Area

Concurrent with the sub-surface preparation of the site, the crew laid out and later erected a 30 foot x 36 foot, free-standing, Weatherhaven tent (Command Model) over the excavation area (Figure 5). The tent, on loan from Canadian Parks Service, had been used during 1988 excavations at The Forks.

The covering of the site was considered vital for several reasons. First, the site was to be excavated by staff-assisted volunteers who had registered for short, specific periods of time; it was essential that these people attend and work on their assigned days. Second, most of the available positions had been booked very early in the project, and the number of projected volunteers exceeded the person-days available during the field season; it was not possible to reallocate individuals to another time slot. Third, volunteers had to work at the site at the time slotted for them or would lose the opportunity to participate until the following field season; it was important that no working days be lost due to poor weather. Finally, the covered site would make excessive heat, rain, wind or snow less of a problem for all involved with the site excavation.

Since the tent protected the site from the elements, it was unnecessary to uncover and cover the excavation area each morning and evening. This allowed the area to be left open for viewing during off hours when no crew were available. Park security patrols were present at all times the crew were off-site and only minor vandalism was experienced during the summer. The tent was closed and secured at the end of each day.

The tent and the open excavation area allowed the interpretation staff to provide information and site tours to those visitors who came to see the site when archaeological staff were not present. Several thousand visitors arrived after 4:30 p.m., and on Tuesdays and Wednesdays, when the excavation crew were not working. The project was in operation from Thursday through Monday during the summer, allowing volunteers who worked Monday to Friday the opportunity to participate. Since the site was of greater interest when actual excavation was taking place, and more people came on weekends, visitors could best be served by maintaining these excavation hours. Project staff were on site from 8:30 a.m. to 6:00 p.m., seven days a week, during the entire summer, whether the excavation crew were there or not. The shifts for the tour guides were staggered in order to maintain these hours.

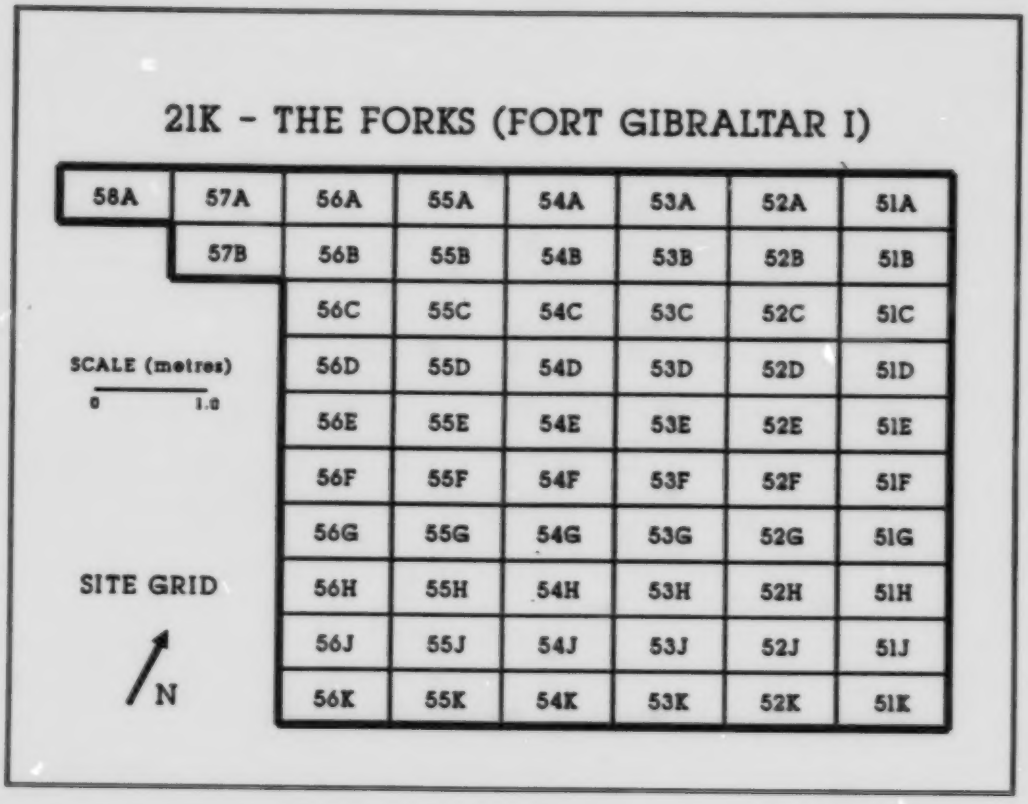



Figure 4: Excavation Site Floor Plan

Figure 5: Site Preparation, July 21, 1989

The final event, in the preparation of the site for public viewing, was the construction of exterior and interior platforms, ramps and walkways which allowed visitors to view the site. The preparation of these facilities was done in stages. The first platform and the wheelchair-accessible ramp were built in front of the west door of the tent, at the edge of the main walking trail along the western boundary of the park. Time constraints did not allow completion of the interior walkway until the second week of the field season. By keeping the eastern door to the tent closed, visitors had to view the site from this vantage point to see the activities and listen to the site interpretation provided by staff members.

Groups that assembled at the eastern door of the tent during times when it was open for ventilation were asked to come around to the western door. This was important since the eastern end of the excavation had no protective platform or railings and the loose nature of the cinder overburden presented the possibility that one of the many young children, who visited the site, might fall into the unit, possibly between the walls and the shoring. There were times, just after the excavation began, especially during weekends, when the small platform at the front of the tent (Figure 6) could hardly hold the hundreds of site visitors. This crowding was alleviated when the interior walkway, which ran along the northern edge of the excavation unit, was finally constructed. This walkway allowed for a further 40 to 60 visitors to watch the crew at work and allowed the interpretation and excavation staff a much better venue to explain their work. Some visitors spent several hours at various stages of the excavation leaning on the railings of this walkway.

Although all visitors could get close to the work and have a good view of all activities being undertaken inside the tent, the platforms and walkway closed off the site interior from any unwarranted intrusion by any of the visitors. There was only one access point to the sub-surface operation area and few people felt compelled to try and get into the units if their view was poor. In fact, the opposite is likely true because the above ground nature of the facilities provided a broader view of the activities. Without these facilities, the staff and participating volunteers would have been crushed by the hundreds of weekend visitors.

The high visibility provided by the tent, coupled with signs directing visitors to the excavation area, were readily identifiable features for any visitor returning to the site, and for first-time visitors who had been told of the project by friends and family.

### 3.5 Outside Excavation Activities

The location of the park boundary and the heavy chain fence that marked its edge were fortuitous. By using the old road on The Forks Renewal Corporation property as an area to dry-screen and water-screen, the fence could be used to separate the visitors from the working personnel. This prevented the crush of people that might have occurred had the fence not been in place. The visitors generally assembled along the fence (Figure 7). The excavation crew, one of the experienced volunteers or one of the interpreters would explain the process and reasons for screening and bring

Figure 6: Visitors Viewing the Excavation

Figure 7: Explaining Water-Screening Procedures

examples of the product of this work to the visitors rather than have them come to the screen. Since the ground was usually wet and muddy and many of the volunteers were young, enthusiastic and working with hoses, this separation probably prevented water from being accidently sprayed on some of the visitors. If a visitor wanted to get a closer look, this was done on an individual basis. Most noted the condition of the volunteers' clothing and did not come any nearer.

All soils removed from the excavation were water-screened with the exception of the railway fill and a small amount of the top level below the railway fill that was excavated in the first days of the excavation. These materials had been dry-screened through 1/4" mesh, using metal-frame shaking screens provided by HRB.

## 3.6 Laboratory Procedures

The project used two trailers as field laboratories. One trailer was designated as the "dirty lab." Here, all initial artifact processing was performed. The second trailer housed the information kiosk, analytic facilities and the computer operations. All recovered artifacts were processed in the field laboratory. All material, from each separate excavation unit and lot, arrived at the laboratory in a field bag, identified with the location of recovery. The artifacts were washed and otherwise cleaned according to material class. Metal artifacts and very fragile faunal remains were dry-brushed with toothbrushes and fingernail brushes; these artifacts would deteriorate further if they were washed with water. Perishable specimens such as cloth, leather and paper were not cleaned. The nature of these artifacts warranted special conservation techniques. The remaining artifacts were washed, in water, using toothbrushes. The artifacts and their paper bags were then placed on 1/4" mesh drying racks.

When the artifacts had dried, the volunteers sorted them by class, according to the Canadian Parks Service system. The class determinations included: glass; window glass; historic ceramics; smoking pipes; nails; fasteners; metal, general; arms and ammunition; fauna; beads; Native ceramics; lithics; worked bone; miscellaneous, organic; and miscellaneous, inorganic. The latter two classes included items such as wood, charcoal, seeds, leather, paper, chinking, mortar and bricks. The artifacts were placed in plastic bags with a paper tag indicating the appropriate class and returned to the field bag.

These paper bags were then brought to the other laboratory trailer and the artifacts were identified by the laboratory supervisor, the laboratory assistant and occasionally by volunteers who expressed an interest in this level of analysis. Artifacts of the same type and from the same provenience, such as sherds from a vessel, were catalogued together. The level of identification was conducted according to data obtainable from available reference materials and staff expertise.

Artifacts were given a sequential inventory number with a prefix denoting the provenience. The site is designated as 21K, in lieu of the Borden number (DlLg-33), in accordance with the CPS format. The next section of the prefix denotes the unit (eg., 53A) and the level (eg., 4). The composite number, thus, provides an inventory

number and locational data. This information was entered into the computer using the CPS DOSSIER program. This program is an inventory system organized on a material class and functional basis. 'Glass,' for example, is one class, but glass artifacts such as beads and window pane are each catalogued under their own class. Similarly, nails and fasteners are separate classes, and 'metal, general' is another class. A numerical code was entered for each applicable attribute of every artifact.

The project used an IBM AT clone computer with a 40 megabyte hard drive. Catalogue cards were generated by the computer, via a dot matix printer, on fanfold 3" x 5" cards. The catalogue card and corresponding artifacts were placed in a plastic storage bag, and stapled shut. These artifacts were stored in open 28 cm x 15 cm x 5.5 cm cardboard boxes.

Where possible, artifacts were reconstructed. These artifacts were primarily sherds from glass bottles and historic ceramic vessels. Selected artifacts were placed in a glass display case for public viewing and other artifacts were laid out on the laboratory tables for visitors to see. The laboratory staff were available at all times to explain the activities being performed and to answer questions.

## 3.7 Volunteer Selection and Preparation

In early July, 1989, the Volunteer Coordinator began scheduling volunteers for both excavation and laboratory positions, on a first come first served basis. Public service announcements and press releases to the media were used to contact and attract as broad a spectrum of members of the community as possible. More than one area of work was offered to accommodate those with varied interests. Additionally, it was possible for volunteers to participate in laboratory work when, for health reasons, they might find excavation too physically demanding.

During the planning process, it was uncertain how many volunteers might be attracted to the program and what actual participation in both task areas might be expected. Volunteers were required to make a commitment of a minimum of one day's work, in either the excavation or laboratory component. They were, however, permitted to register for up to five days, which could be filled in a block or split up over the field season. Many of the first volunteers chose the latter option, giving them an opportunity to experience ongoing changes at the site.

Within a matter of days, after the opening of the site, it became apparent that, because of the public's interest in participating in the project, all of the positions and days available during the field season would soon be filled. All original bookings were honoured but the maximum commitment was reduced to three days and very soon after, to a single day with the opportunity to be on the "stand-by" list. Family groups were encouraged to participate and the only restriction placed on volunteer participation, a minimum age of nine years, was often waived with parental participation within these family groups. On several occasions, conversations between a nine-year-old and a sixty-year-old, working side-by-side, regarding the interpretation of a feature or artifact concentration, proved quite interesting.

It was stressed to the parents of all younger volunteers who participated in the program that the excavation was a working environment, and that their interest was important for the successful participation of these younger volunteers. The site was not to be viewed simply as a drop-off centre or a form of daycare program. Any fears expressed on this account were unfounded. Often, parents, who did not participate with their children, stayed for several hours to watch the work or visited during the lunch or coffee breaks. Generally, the level of parental support and enthusiasm was very high and greatly appreciated.

### 3.8 Site Orientation of Volunteers

The Forks Pilot Public Archaeology Project in 1989 was a learning experience for all of the participants— both staff and volunteer. Although all of the staff had done varying amounts of public archaeology in the past, their previous experiences barely prepared them for the intensity of the 1989 field season. In fact, similar to the volunteers who joined the crew, they learned a lot from on-the-job experience. Few archaeologists are trained teachers and most archaeological excavations are conducted using a professional staff and crew. The challenges faced by the staff of the project were to conduct an excavation that would maintain professional standards and to provide volunteers with a training session in archaeological theory and procedure that was both educational and enjoyable.

Few of the volunteers who participated in the 1989 program had had any previous experience in archaeology. It was necessary to familiarize them not only with site specifics, but all other aspects of archaeological work. The volunteers, however, did bring with them the main ingredient— enthusiasm (Figure 8).

As previously stated, at the beginning of the season it was expected that the volunteers attracted to the program would participate for a week and would learn the basics of archaeological theory and procedure in short, but intense, lecture sessions. This training was to be augmented with on-the-job instruction. It was also expected that, often, a number of partially-trained volunteers would be working with new volunteers. These "veteran" volunteers could not only share their experience with the newcomers but would require less of the project archaeologists' time. The archaeologists, in turn, would have more time to spend with the new volunteers and concentrate on their training.

As the demand for volunteer positions increased, however, schedule adjustments meant that each volunteer spent less time with the program. The lecture session was shortened, as it would have been unreasonable for a one-day volunteer to spend a major portion of his/her time in a classroom. As a result, much more time was spent explaining procedure and technique to the volunteers during the "hands-on" portion of their allotted time. This is not to say that the quality of the archaeology suffered. It did mean that the pace of work was slowed and that staff input became more intensive and individual in nature. This likely enhanced the experience of the volunteer, giving each more time with a staff member.

Figure 8: Volunteers in Action

At a staff meeting each morning, the day's work strategy was laid out. The number and ages of the incoming volunteers were discussed, as the latter was important in terms of the overall plan for the day. Greater responsibility was generally given to adult volunteers. Some days, all the volunteers were young and adjustments had to be made in terms of planned activities for the day.

The program followed the same format each day. Volunteers worked from 9 a.m. to 4 p.m., with coffee breaks and a lunch break. They were met by the Volunteer Coordinator, who gave them name tags, explained the daily schedule of activities and escorted them to the laboratory facilities. They were shown where to stow personal belongings and offered a cup of coffee prior to the orientation session. The Project Director began the orientation session with a welcome to the site and explained the purpose and importance of archaeology and the goal of the project. Following this, the staff archaeologists, on a rotating basis, explained how to use the various tools in both the excavation and laboratory and presented a brief history of The Forks and a general history of Manitoba around the time of the first British and French settlers and the Fur Trade. Volunteers were given the opportunity to ask questions after the presentation. Following this, all of the volunteers were taken to the excavation. Here, they were shown how to move about in the pits without disturbing surfaces, walls of the units or dividing markers. Those scheduled to work in the laboratory returned there and received more specific instructions on cleaning and processing artifacts. All volunteers paid close attention to the rules of the site and were very careful when in the excavation area. No serious problems were experienced in terms of individuals walking over artifacts, features or the like.

The keys to the teaching program were taking the time to explain why a procedure was necessary and explaining in detail why it had to be done in a certain manner. Every volunteer followed or attempted to follow procedure at all times. Considerable patience on the part of the crew was called for since the same introduction had to be delivered on a daily basis to each new volunteer. The motto of the staff was always: "When in doubt, ask questions. That's what we are here for."

At times, this proved to be a rather trying motto, but the enthusiasm of the volunteers was a fine tonic for the staff. Although many volunteers' participation at The Forks will be the only archaeological experience they will ever have, the alumni of the 1989 season will be welcome returnees to any future excavation. One of the program's prime goals was to give the volunteers a positive, fulfilling experience to further develop their interests in heritage and archaeological concerns.

## 3.9 Visitor Services

The number of people who visited The Forks in 1989 was much greater than expected. In fact, visitor flow nearly overwhelmed the staff at the beginning of the summer. Most archaeological projects, while accepting that individuals might be drawn to see what is going on, are rarely publicized as an attraction and it had not been possible to judge visitor flow.

Two site interpreters had been hired to explain the reasons for the excavation and the processes that were being undertaken. At times, these staff members were almost overwhelmed when hundreds, and even thousands, of visitors would attend the site on a daily basis. Other staff readily provided assistance, giving short lectures and answering questions, on an impromptu basis, in the middle of other activities.

As with the volunteers, most visitors expressed a genuine interest in viewing and asking questions about the work being done. The platforms and walkways around the excavation area and the public access to the laboratory space were often crowded to over-capacity on weekends. While the repetition of the same site history and reasons for the excavation were part of the job description for the staff and accepted as part of the program, the crush of weekend visitors sometimes taxed the ability of the crew to adequately explain the program. New arrivals, who had missed part of the lecture, would ask questions about what the rest of the group had already heard. It was impossible for the staff to know who had heard what part of any previous lecture. Generally, visitors were forgiving for any problems they experienced due to difficulties of access or hearing. For the most part, it is felt they gained at least a partial understanding of what was happening and it was continually stressed that if they were really interested they could come back when there were less people. Many did. A visitors' guest book was available for comments at all times during the season. With the odd exception, the comments were favourable.

### 3.10 Site Closure

The block excavation undertaken at Fort Gibraltar I in 1989 remained incomplete at the end of the field season. Although the excavation procedures and methodologies were maintained at a professional level, the pace of the excavation had not been as rapid as would have occurred with a team of professional archaeologists. The focus of the project—to provide an educational experience through public participation—did not require a set rate of production. In fact, one of the criteria, for selection of this particular location, had been that developmental impact would not impinge upon the location in the foreseeable future.

Since the excavation was not completed by the time the public program ended, methods of protecting the resources that remained in the ground in this portion of the site area had to be developed. At the end of September, the professional crew continued the excavation of partially completed levels (Figure 9). Each unit was continued to the base of the natural level which had not been finished by the end of the public program. Also, in anticipation of returning to the site in 1990, a small number of units were excavated through the underlying levels to obtain stratigraphic data.

The major sand level (the 1826 flood zone) was one of the prime reasons for protecting the remaining resources in this area of the site. It was felt that there was a possibility this zone could act as an aquifer; melt-water and spring run-off might cause sub-surface erosion where the sand stratum had been cut by excavation units. This

Figure 9: Preparing for Site Closure

would cause units to fill with water. More important, sands and silts could be eroded from the walls of the units, thereby undermining the edges.

Since the Geotex fabric used to cover the 1984 excavations demonstrated that a fabric covering would protect the units, a similar process was adopted in 1989. Rather than using the long-term protection offered by Geotex fabric, however, plastic sheeting was used to cover the operations.

Four-millimetre-thick sheeting was placed directly on the surface of the units and covered the entire excavation area with an overlap of three feet on all edges. Bales of straw were then laid tightly together on top of the plastic sheeting. The straw bales were also placed into the deeper excavation units created by the testing at the end of the season. The bales, almost identical in size to the units, provided tight in-filling. Two layers of bales were used in this procedure, then covered with another layer of plastic with the overlap from the first layer of plastic turned over the top of the second layer (Figure 10). It was felt that this would prevent large quantities of water from soaking into the bales.

The result was a flat, sealed, tightly-packed layer of straw, underlain and covered with plastic. Fill was trucked to the site and dumped on top of the plastic and straw. A four-wheeled Drott was used to spread the fill to all edges of the excavation hole. The fill was tamped with the blade of the machine and leveled to original ground surface. These procedures should prevent sub-surface erosion of the sand level and allow easy, non-destructive, removal of the fill when the site area is re-opened.

At the close of the field season, the tent covering the area was removed and the superstructures of the walkways and ramps were unbolted and placed into storage. These were removed to prevent injury to anyone attempting to climb on the railing and to prevent anyone from taking the wood for other uses. The surface facilities of the walkways and ramps were left in place as they are heavy enough to dissuade thieves. It would not have been possible to move them into storage facilities unless they were cut into sections. It was felt that cutting the structures into sections would cause problems of reconstruction the following season and might weaken them.

The Forks Renewal Corporation granted permission for the B&B Building to be used as a temporary storage area for materials from the site that would not be damaged by cold. Security for the area is provided by both FRC and Canadian Parks Service.

The remainder of the facilities at the site, in the enclosure beside the B&B Building, were returned to the suppliers. The trailers were rented units and after electrical power was disconnected, they were picked up by the rental company. The materials in the trailers were returned to the institutions that had provided them.

The final result was a cleared compound and an in-filled area bounded by the structural base of the ramps and walkways surrounding the 1989 excavation area. It is anticipated that only a few days will be needed to completely re-install the facilities again for the 1990 season. The one question that will remain to be answered until the site

Figure 10: Excavation Protection

is re-opened is the success of the mechanisms developed for the protection of the surface of the excavation area.

## 3.11 Site Facilities

The following is a list of the site facilities and infrastructure developed and/or used for the operation of the Pilot Public Archaeology Project at The Forks during the 1989 season. This section is included to detail the types of facilities that are seen as necessary to mount a program of this nature in an urban area during a summer field season. Different settings, sites and local conditions would probably demand different material needs. What is presented here, though, will give the reader an indication of the support systems needed to pursue such an undertaking.

The Forks program was fortunate to have the support of a number of agencies from which much of the material needs of the project could be drawn. As well, much of the infrastructure had already been developed prior to the beginning of the archaeological operations. The public program was able to use this infrastructure for its own purposes. Where major logistical or material support was given, the agencies that provided them are noted.

### 3.11.1 Excavation Area

1) An all-weather, free-standing, Weatherhaven tent was used to enclose the excavation area. Such a structure is necessary to prevent inclement weather from creating volunteer crew scheduling problems. The tent also provided perimeter control for site visitors, enabling the staff to focus the public at key access points to the excavation. The tent allowed for a regular day-to-day operation to take place throughout the season without worry about the weather interrupting the program. The tent was provided by Canadian Parks Service.

2) Walkways, wheelchair-accessible ramps and railings surrounded the excavation area. Such facilities are necessary to allow access to the program for the greatest possible number of individuals. Good viewing facilities reduce problems of visitors trying to gain access into the units or blocking the workers from performing their tasks. Since these facilities are built on public property and the public is invited to the area, this component should be professionally designed and approved. Properly designed facilities reduce the risk of accident, and the risk of legal problems should an injury occur. The 1989 season saw over 41,000 visitors come to The Forks site. Improper facilities could have resulted in major access problems and could have created legal problems if a visitor had had an accident. Architectural plans for the ramps and walkways were designed and contracted out to a local construction firm.

### 3.11.2 Operation Area Shoring

The rough edges of the excavation area were shielded by a shoring of pressboard and held in place by re-bar sunk into the ground to prevent unnecessary injuries to staff or volunteer crew. The cost of this material is very low and if one injury is prevented, it has paid for itself. Due to the shallow nature of the excavation, shoring was not legally required. Projects should safeguard against liability due to neglect to protect volunteers and site visitors, however.

### 3.11.3 Screening Area

All materials from the excavation at Fort Gibraltar I were either wet- or dry-screened. This is an activity that recovers much of the small artifact material from an excavation and is of great interest to the general public. An area large enough to accommodate a number of viewers, far enough away from the excavation component to prevent visitor overlap, should be provided. This reduces the problems of two interpreters competing with each other while giving explanations of the archaeological processes being undertaken. Since water-screening creates surface water problems, the area should be down slope from the excavation and from the area where visitors gather to watch. The area should also be placed so that visitors do not have to walk through soggy ground to get to other components of the program. The 1989 excavation had access to the pressurized water and irrigation system of the Canadian Parks National Historic Site. Since some of the water came from the Red River, it could not be used as drinking water. Dry-screens were provided by HRB. Wet-screening was assisted by donations of old window screens by the general public.

### 3.11.4 Laboratory Facilities

Two trailers were located beside the excavation, in a lockable compound. One was the Wet Laboratory where artifacts were washed and sorted. This trailer was also used as a secure storage area for personal belongings and as a general storage area for the excavation equipment. Since the laboratories were open to the public, this and the other trailer had architect-approved stairs and access facilities built for visitors.

The second trailer was located beside the Wet Laboratory and was used to sort, catalogue and perform preliminary analysis of the materials from the excavation. An IBM AT clone computer with a 40 megabyte hard drive was used in the Dry Laboratory to enter all of the excavated finds into the CPS DOSSIER program for artifact data entry.

The Dry Laboratory was also open to the public and was used to give talks on the laboratory procedures being followed at the site. A small display was developed inside the trailer to augment another at the door of this facility. Visitors were encouraged to ask questions and examine the artifacts.

Books, about archaeology and Manitoba history, and site-specific souvenirs, such as T-shirts, were sold in this trailer. The revenue brought in from such an area, although small, helped augment costs incurred during the project. Further promotion of such an area could likely see greater revenues being generated.

Electric power and telephone service were available at the site and hooked up for use for a fee from the two utilities. The costs of bringing in such services from even a short distance are high and consideration should be given to where the facilities are placed. The telephone, available to both staff and volunteers, was used for two medical emergencies during the summer.

### 3.11.5 Washrooms

The public facilities of the Canadian Parks Service National Historic Site were used by the crew and visitors. Arrangements had to be worked out with Canadian Parks Service to open and close these facilities according to the program schedule. This was important during the latter phase of the program when all of the facilities of the park were to be closed for the season.

## 3.12 Site Excavation Methodology

The archaeological methodology conducted at The Forks in 1989 followed conventional techniques of data retrieval from a multi-strata site area. The site was excavated in natural levels following procedures detailed in the *Parks Canada Archaeology Manual Volume I: Excavation Records System*, published by Parks Canada in 1977. These excavation techniques and procedures allow for a system-wide approach to all archaeological excavations conducted on Canadian Parks Service land or on sites excavated under their direction.

Using this methodology, the excavation area is defined as an operation, with individual units defined as sub-operations within the excavation proper. Sub-divisions of the sub-operation are identified as lots and are the smallest division within the system. Lot numbers may be assigned to soil layers, individual artifacts, clusters of artifacts or samples. Lot numbers are also assigned to the whole or parts of what elsewhere might be known as features. Although general rules apply, the rationale for assigning a lot number can vary from excavation to excavation, and archaeologist to archaeologist, depending on the conditions presented at the site in question.

All materials, with the exception of a small amount of the soils removed during the first days of the field season, were either dry- or wet-screened. The materials from the railway fill level were screened using the former method while all natural soils were wet-screened. The materials used for screening were ordinary window screens and a pressurized hose system.

All artifacts were collected and bagged following the directives for the *Parks Canada Archaeology Manual*. These artifacts were then removed to the on-site laboratory and processed, again according to CPS inventory format. Photographs were taken using conventional archaeological procedures and recorded according to the Parks Canada system. Copies of the *Manual* should be consulted for further information regarding excavation procedures.

## 4.0 STRATIGRAPHY

The stratigraphic layers throughout the site are divided into four basic, distinguishable time periods. These are:

a) The Railway Period (1888-1988);
b) The construction of the B&B Building;
c) The Pre-Railway/Post-1826 Flood including the Hudson's Bay Company Experimental Farm;
d) The 1826 Flood;
e) The Fur Trade Period including Fort Gibraltar I.

As part of the initial investigation of the site, a stratigraphic pit (test trench) was dug. It was excavated to a depth of 1.7 m below the base of the railway fill stratum. At the end of the 1989 field season, a profile was taken, as a sample, by Dr. C.T. Shay and Dr. L. Stene. The sample is still under sedimentological and botanical study.

Numbers were assigned to the stratigraphic layers as a means of standardizing descriptions and establishing a chronological sequence to help describe both the natural stratigraphy and the cultural events.

Twenty-nine soil layers were identified at the site. Figure 11 gives a description of the various layers. Figure 12 shows the layer/event relationship (i.e., the soil layers making up the cultural events). The stratigraphy varied greatly, ranging from relatively simple profiles (21K56C) (Figure 13) to complex structures (21K51A, 21K56A) (Figure 14 and Figure 15).

Several features were designated during the excavation at the site. Letters were assigned to the features to distinguish them from soil layers. Descriptions are provided within the relevant cultural event. The locations are plotted on Figure 16.

### 4.1 Railway Period

The uppermost part of the railway fill was removed to a depth of 1.25 m by a skilled backhoe operator, in preparation for laying out the grid. The remainder of the fill in the sub-units was removed by shovel and trowel and designated as 21K50A99. It consists of two main stratigraphic layers and a dump feature:

Layer 1: Uncompacted fill of grey, black and red cinders and gravel covering the entire site.

Layer 2: Orange to black leaching from the cinders. The staining appears primarily in the eastern units of the excavation, tapers off to the south-west and eventually disappears.

| | |
|---|---|
| 1 | Railway fill including cinders and gravel. This is the top stratigraphic layer throughout the site. It underlies landscape material (i.e., sod). |
| 2 | Orange-dark brown stain (leaching from cinders) consists of fine particles of cinder and coal dust. Stain extends into upper surface of underlying stratum. |
| 3 | Construction sand, tan to buff (coarse grain). |
| 4 | Construction sand with some inclusions of ("Australian Camouflage") mottled variations of sand, colour and texture. |
| 5 | "Australian Camouflage" sand; mixture of sand of different colours in patches of brown, yellow and buff. |
| 6 | Buff colour coarse sand, with small pebbles. |
| 7 | "Australian Camouflage" clay, with variations of colours in patches of brown, yellow and buff. Clayey in texture. |
| 8 | Mottled clay, dark brown to tan. |
| 9 | Tan-buff clay, swirly patterned. |
| 10 | Brown coloured clay with organic stains. |
| 11 | 1826 flood sands, yellowish in colour. |
| 12 | Flood sands with embedded lens of tan clay. |
| 13 | Buff coloured sandy clay. |
| 14 | Fur Trade clay. Mottled, dark brown, silty clay with organic stains and patches of olive grey to tan silts. Includes patches of wood, bone fragments and fish scales. |
| 15 | Buff coloured silty sand. |

Figure 11: Description of Soil Layers

| | |
|---|---|
| 16 | Buff coloured silty clay. |
| 17 | Silty clay with brown organic stains. |
| 18 | Grey-brown clay with clusters of beads and shot. |
| 19 | Clusters of chinking, charcoal and wood. |
| 20 | Clusters of red chinking. |
| 21 | Organic brown lens. |
| 22 | Light grey ash pockets. |
| 23 | Grey-brown clay. |
| 24 | Brownish-grey clay. |
| 25 | Pockets of charcoal, bo[illegible]and shell. |
| 26 | Organic lens with black charcoal. |
| 27 | Light brown clay with sand patches. |
| 28 | Greasy, dark grey clay with cracks resulting from either freezing or drought. |
| 29 | Brown clay of silt inclusions. |

Figure 11: Description of Soil Layers

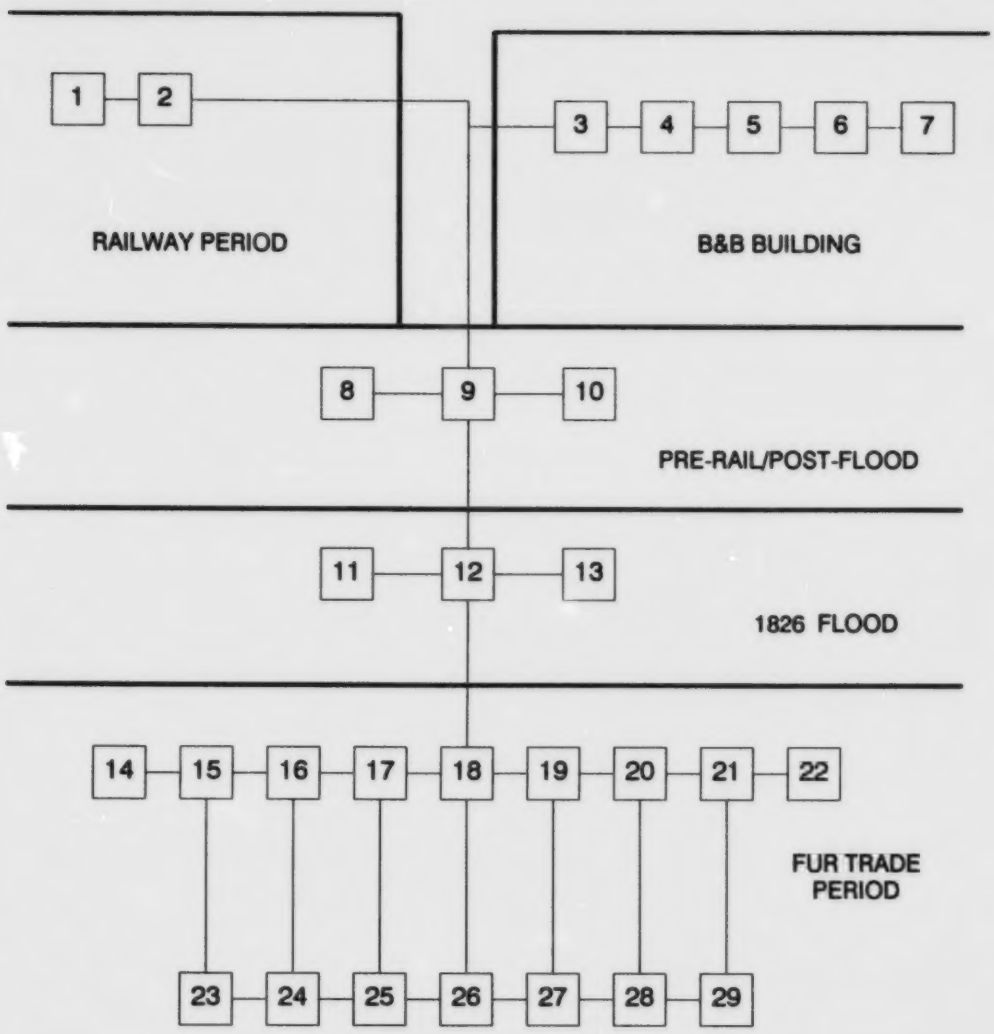
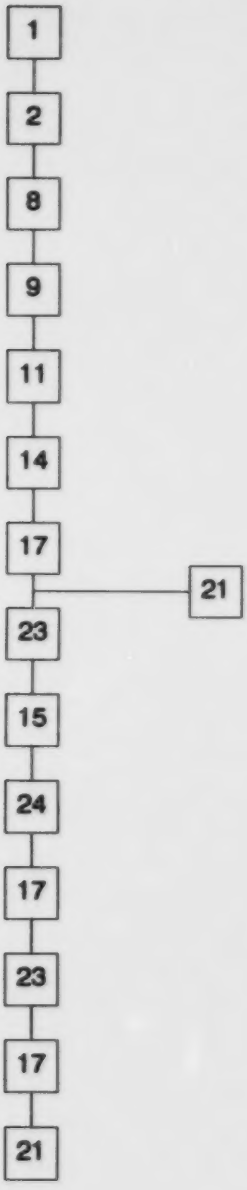



Figure 12: Soil and Event Correlation

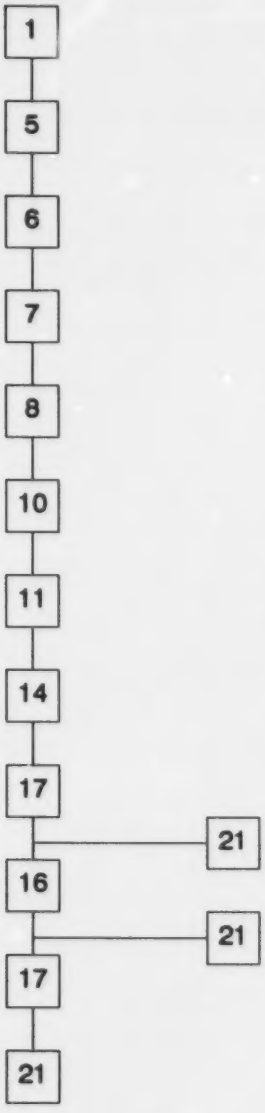
1 – Railway fill
5 – "Australian Camouflage" sand
6 – Coarse sand with small pebbles
7 – "Australian Camouflage" clay
8 – Mottled clay, dark brown to tan
9 – Tan-buff clay
11– 1826 flood sands

Figure 13: Soil Profile of 21K56C




1 – Railway fill
2 – Orange-brown leaching from cinders
8 – Mottled clay, dark brown to tan
9 – Tan-buff clay
11– 1826 flood sands
14– Fur Trade clay, silts with organic stains
17– Silty clay with brown stains
21– Organic brown lens
23– Grey-brown clay
15– Silty sand
24– Brownish-grey clay
17– Silty clay with brown stains
23– Grey-brown clay
17– Silty clay with brown stains
21– Organic brown lens

**Figure 14: Soil Profile of 21K51A**




1 – Railway fill
5 – "Australian Camouflage" sand
6 – Coarse sand with pebbles
7 – "Australian Camouflage" clay
8 – Mottled clay, dark brown to tan
10– Brown organic clay
11– 1826 flood sands
14– Fur Trade clay, silts with organic stains
17– Silty clay with brown stains
16– Buff coloured silty clay
21– Organic brown lens

Figure 15: Soil Profile of 21K56A

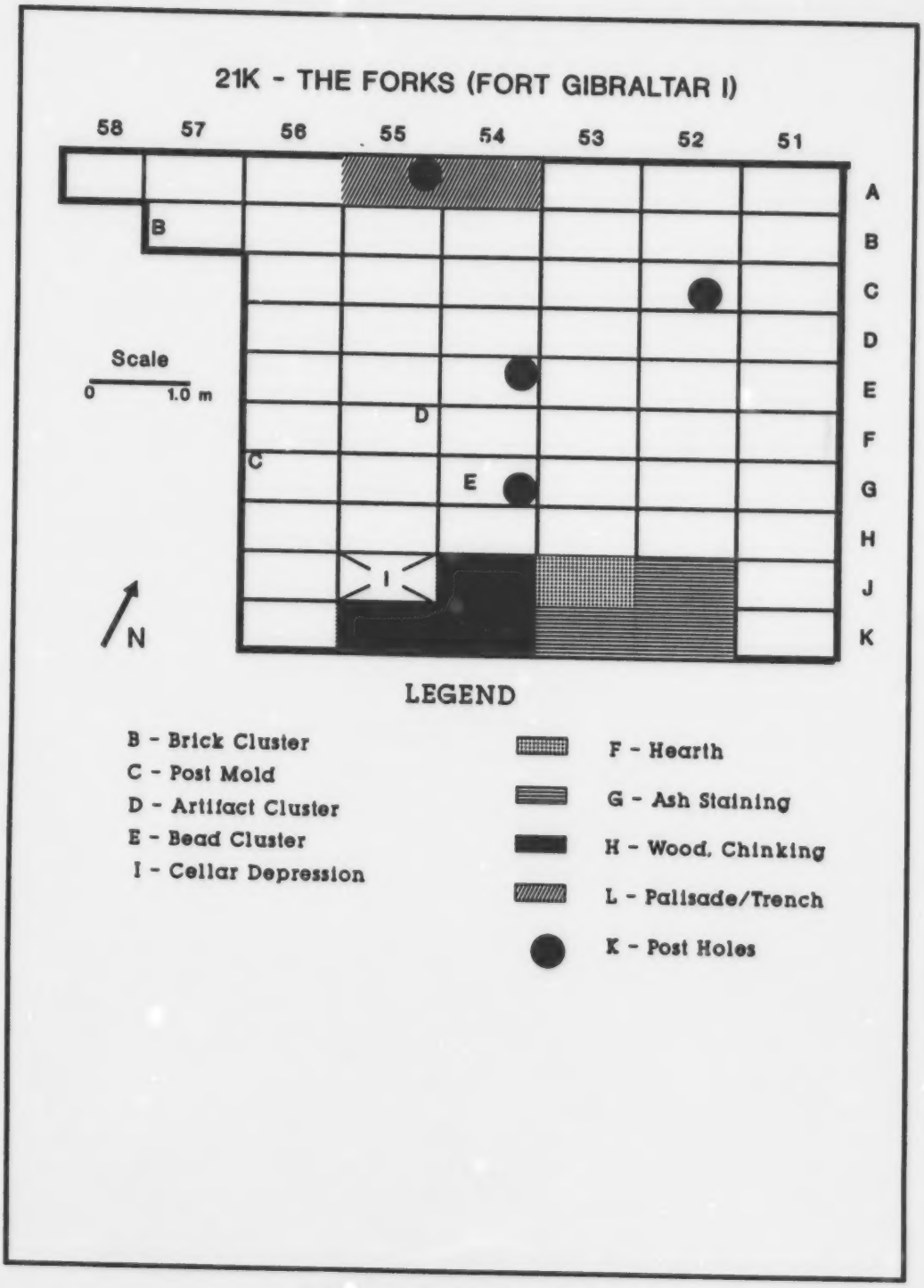



Figure 16: Feature Locations

Feature A: Blacksmiths' Dump

This is a railway-related feature located in the western part of the site. A large cluster of barrel hoops, metal train parts, railroad spikes and wooden ties are associated with Feature A (Figure 17).

## 4.2 B&B Construction

Soil depositions associated with the construction of the B&B building (1888/89), and contemporary with the railway fill period, were observed in the western half of the excavation (Figure 18).

Soil layers 3,4,5,6 and 7 consist of construction sand and clay. They are clearly visible in the profile of the west wall of the excavation (Figure 19).

Layer 3: Coarse-grain construction sand, below the railway fill.

Layer 4: Consists of construction sand and inclusions of patches and pockets of clay mixed with charcoal, giving it a mottled appearance.

Layer 5: Known colloquially throughout the field season as "Australian Camouflage." It consists of a mottled mixture of brown, buff, tan, grey and black sands that vary in texture. The thickness ranges from 5 cm to 30 cm at the western wall. The stratum tapers off, disappearing towards the eastern half of the excavation (Figure 20).

Layer 6: Coarse sand containing a large number of small pebbles. It ranges in thickness from 2 cm to 18 cm. A soil sample was collected.

Layer 7: Also "Australian Camouflage," but has a clayey texture. This layer, too, tapers off and eventually disappears. It varies in thickness throughout the units, ranging from minimal to 20 cm.

It is evident that these strata are from a construction activity rather than from natural causes.

Feature B: Bricks

The one feature associated with this time period was located, and partially excavated, in unit 21K57B. Feature B consists of a pile of nine bricks (eight red and one yellow) mixed with soil quantities of pebbles, and a large piece of coal. The bricks appear in the south-west corner of the unit and have no makers' marks. They reach through Layer 7 and sit on Layer 8, which is the mottled dark brown to tan clay of the Pre-Railway/Post-Flood Period. Evidence of a circular stain around the bricks, possibly part of a cellar or dump pit, was uncovered in the lower levels. Further excavation of units 21K58B and 21K58C is needed to fully expose the extent of this stain and provide data for interpretation.

Figure 17: Feature A

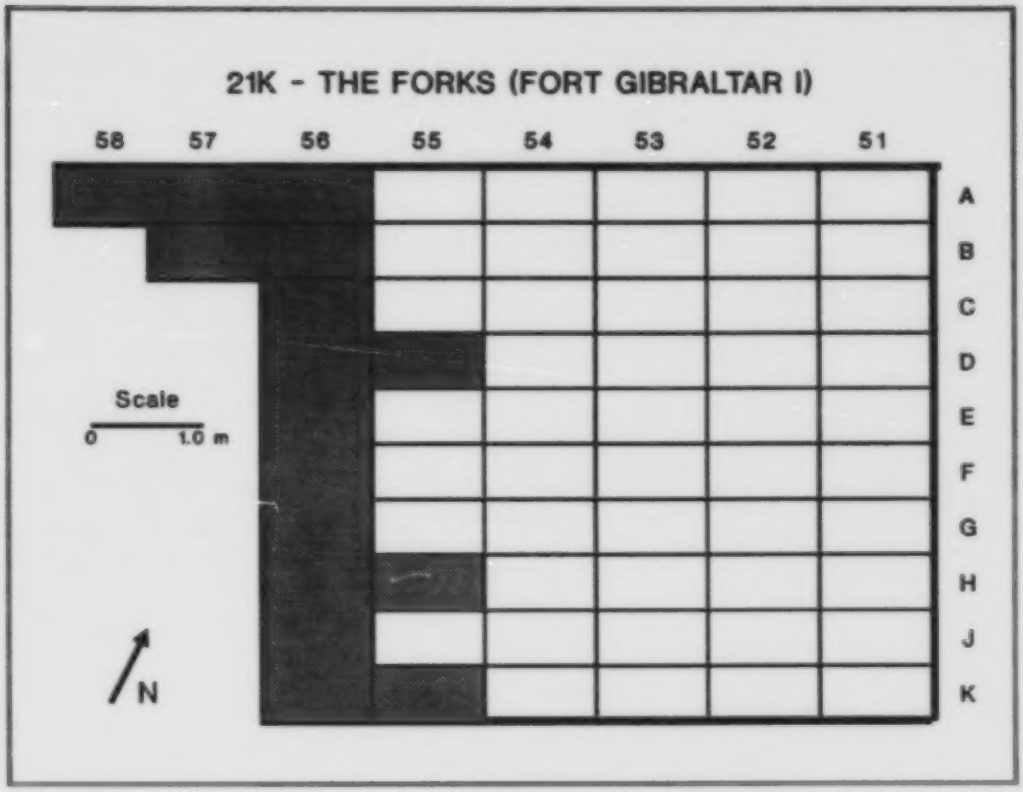



Figure 18: Location of B&B Soils

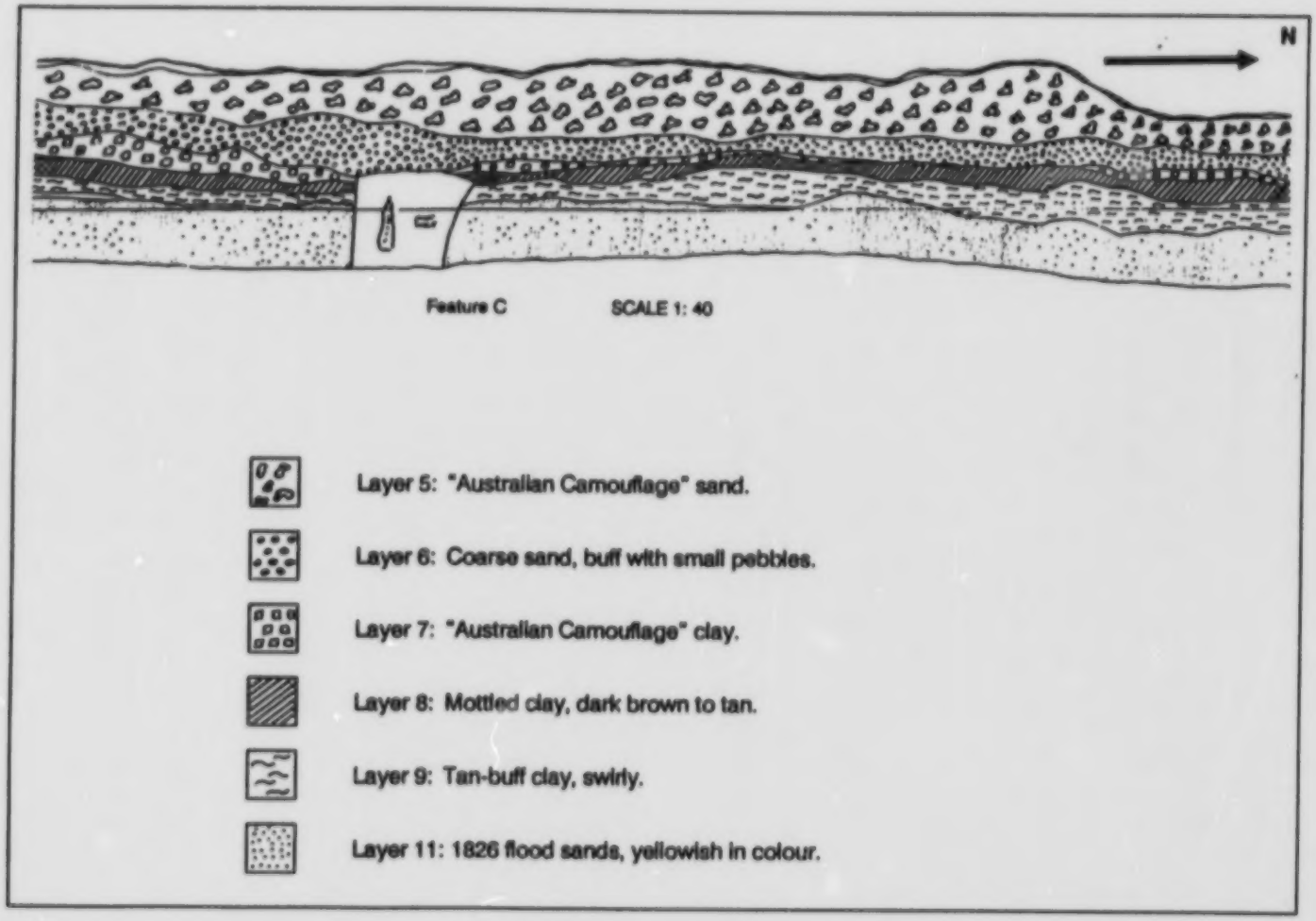

N
Feature C
SCALE 1: 40
Layer 5: "Australian Camouflage" sand.
Layer 6: Coarse sand, buff with small pebbles.
Layer 7: "Australian Camouflage" clay.
Layer 8: Mottled clay, dark brown to tan.
Layer 9: Tan-buff clay, swirly.
Layer 11: 1826 flood sands, yellowish in colour.

Figure 19: West Wall Profile

Figure 20: "Australian Camouflage"

### 4.3 Pre-Railway/Post-1826 Flood

The levels of deposition of the Pre-Railway/Post-1826 Flood Period occur immediately below the railway fill or the B&B construction levels. They are consistent throughout the site. The depositions include the levels associated with the Hudson's Bay Company Experimental Farm (1836-1848).

A thick layer of metal encrustation was excavated in units 21K56E, 21K55G and 21K55H. It includes metal sheets, nails and other unidentified, corroded metal objects embedded in the rust-stained soil. These artifacts may have been deposited during the earliest years the railroad used the area (during, or shortly after, the construction of the B&B Building, 1888/89) or they may be associated with the Immigration Period (1872-1882).

Below the metal, three different soil layers were identified in most of the units.

Layer 8: Mottled, silty clay (dark brown to tan). This layer is consistent throughout the excavation area, and includes charcoal staining, charcoal flecks, chips of wood and pockets of ash and sand. Because of the high clay content, the stratum became extremely hard when it dried (Figure 21).

In some units, the mottled clay appears as a greasy black level with extensive staining. In addition, larger pieces of wood, some of which were charred, were excavated from this stratum. Unit 21K54K (Figure 22) had an 1875 U.S. one-cent-piece lying on the surface of the stratum.

Layer 9: Tan to buff silty clay with some swirl patterning. The mottled clay in Layer 8 grades gradually into the lighter, silty clay of Layer 9 in the western part of the excavation. It gradually dips towards the east and has a decreased density of artifacts, some pieces of chinking and patches of organic stains.

Layer 10: Brown organic, mottled, silty clay. There are organic stains and several embedded lenses of charcoal.

Features associated with this event include the following:

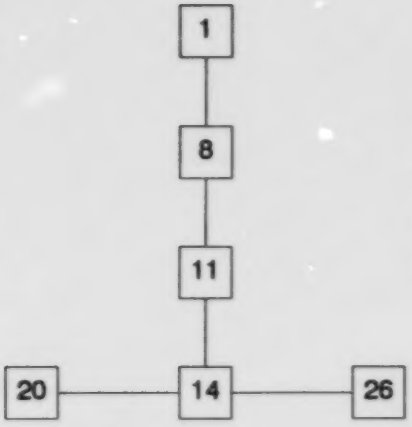
Feature C: Post Hole

A post hole occurs in the north-west corner of unit 21K56H and extends into unit 21K56G. It begins in Layer 8 and extends into the sands in the lower Flood Level (Figure 19). The post hole has straight edges with an organic stain and a piece of wood in its centre.

Feature D: Artifact Cluster

A large quantity of metal, some bone, limestone, wood and nails were recovered from the northern part of unit 21K55F. The feature continues into unit 21K54F.

Figure 21: Layer 8




1 – Railway fill
8 – Mottled clay, dark brown to tan
11 – 1826 flood sands
20– Clusters of red chinking
14– Fur Trade clay, silts with organic stains
26– Organic lens with black charcoal

Figure 22: Soil Profile of 21K54K

## 4.4 1826 Flood

The flood soils are of the Cumilic Regosol horizon, a type of the Regosolic soils. The soils are "a comparatively unaffected recently deposited river alluvium, granular and friable, varying from loam to silty clay in texture, neutral to mildly alkaline in reaction, dark layers of buried organic residues deposited on former surfaces" (Manitoba Agriculture n.d.: 31). The organic matter usually decreases irregularly with depth. Regosolic soils are generally weakly developed, lack genetic horizons and consist of primarily pure quartz sand. The characteristics are due to a number of factors, including general climatic conditions and the instability of the material, which is recently deposited alluvium.

The area of The Forks has been affected by numerous floods over the past millenia. Every stratigraphic profile does not have evidence of each and every flood event. During the 1989 excavation, evidence of the 1826 Flood was uncovered. As noted elsewhere in this report, however, the 1984 excavation found evidence of floods that occurred in 1852, 1861 and 1882. Further excavation and linkage of the two operations will make it possible to explain these stratigraphic differences.

Layer 11: Deposition of thick layers of sand require the presence of large-scale, rapidly-moving flood waters that are suddenly slowed. The major flood known to immediately pre-date the Experimental Farm occurred in 1826. The stratigraphic position of Layer 11, below the plow zone of the agricultural period and above the Fur Trade strata, confirms the designation of this sand level as representative of the 1826 Flood. This stratum provides an excellent control for the separation of the stratigraphic deposits at the site. The thickness of this layer ranges from minimal to 30 cm. It is thickest in the western units, tapering off to only a few grains in the eastern units (Figure 23).

Layers 12 and 13: The fine lenses of sands and silts have a swirled pattern, and in most of the units include discontinuous clay lenses, 1 cm to 2 cm thick, as well as charred and calcined bone, charcoal specks and shell. Patches of brown organic material and decayed wood were also recovered. These lenses of artifacts are the result of secondary deposition and could have been washed in or smeared during the flood.

## 4.5 Fur Trade Period

Soil layers 14-29 pre-date the 1826 Flood. Interpretation of the soil chronology is difficult because of the complexity of the stratigraphy and the fact that the excavation was not completed to the base of the Fur Trade Period. At this point, any conclusions are tentative. Further excavation is required to determine the actual boundaries of Fort Gibraltar I, as well as the exact sequence and mechanism of soil deposition.

This horizon was most complex. A brief description of the designated levels and features is provided below.

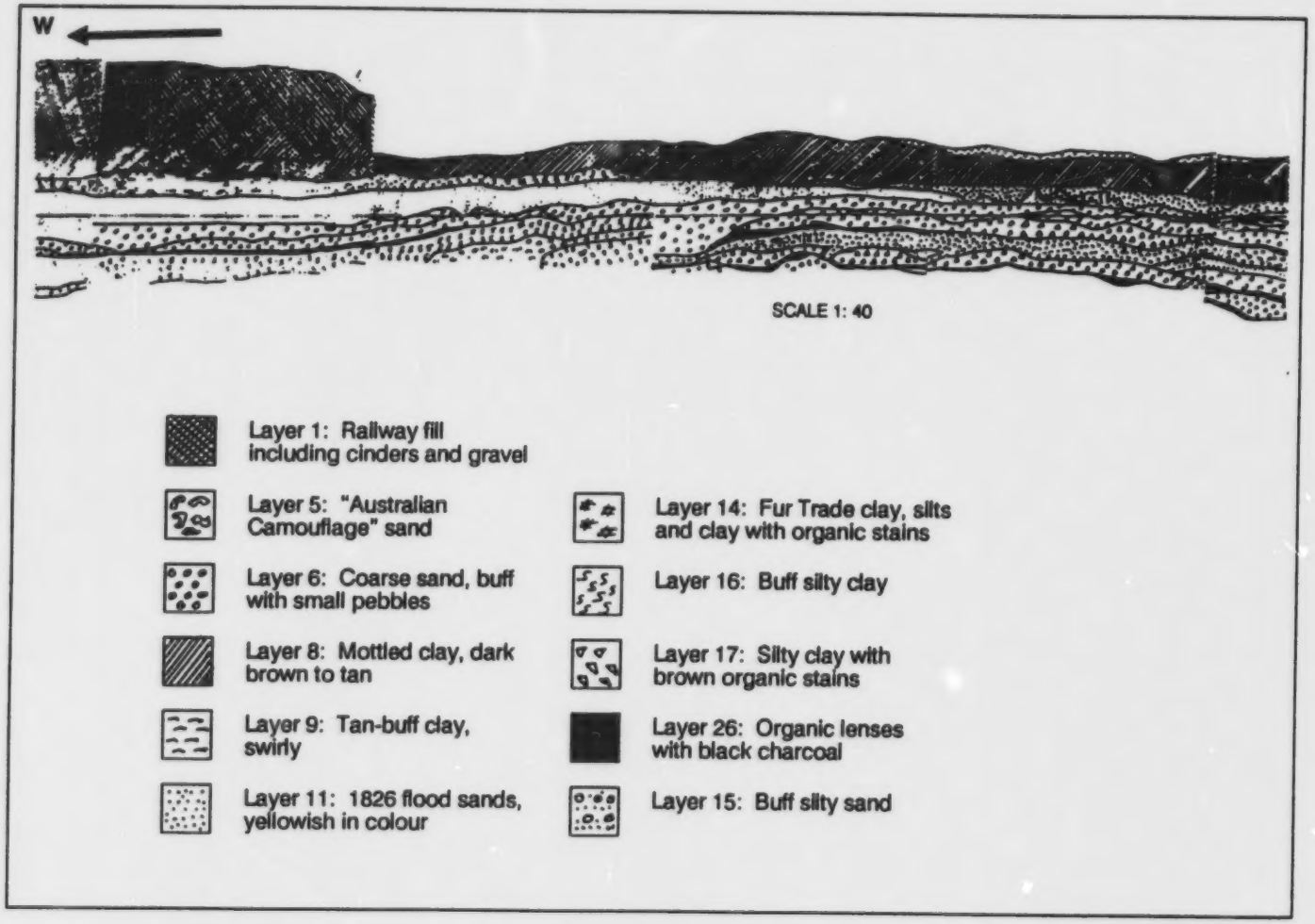

W
SCALE 1: 40
Layer 1: Railway fill including cinders and gravel
Layer 5: "Australian Camouflage" sand
Layer 6: Coarse sand, buff with small pebbles
Layer 8: Mottled clay, dark brown to tan
Layer 9: Tan-buff clay, swirly
Layer 11: 1826 flood sands, yellowish in colour
Layer 14: Fur Trade clay, silts and clay with organic stains
Layer 16: Buff silty clay
Layer 17: Silty clay with brown organic stains
Layer 26: Organic lenses with black charcoal
Layer 15: Buff silty sand

Figure 23: North Wall Profile

### 4.5.1 Designated Layers

Layers 14 to 29: The predominate soil (Layer 14), a mottled, dark brown, silty clay with organic stains and patches of olive grey to tan silt, contains particles of wood and bone fragments. There are several charcoal (Layer 26) and brown, organic lenses (Layer 21) at various depths, as well as pockets of sand with ash, clusters of chinking (Layer 20) and charred wood (Layer 19).

The majority of artifacts from the Fur Trade Period were recovered from the upper levels. Their frequency gradually decreased until a sterile soil layer was encountered. This stratum contains silty clay (Layer 14) with some charcoal deposits. Some units were excavated below this sterile layer, resulting in the recovery of additional historic artifacts. The temporal equivalent of these remain to be determined.

Chinking was excavated and removed from units 21K54E and 21K54G (Figure 24). The layers below are consistent in both units. Soil layers include silty, tan sand with patches of clay (Layer 16), and greasy, greyish-brown clay. These layers are followed by a flaky, greasy, dark clay with brown organic stains and a cracked surface (Layer 28) caused by freezing or drought overlaying a charcoal lens on an irregular, wavy surface.

Feature E: Beads

A bead pattern, lying on a floor of brown silty clay (Layer 29) and associated with other artifacts, was exposed in the south-west corner of unit 21K54G10 (Figure 25).

### 4.5.2 Diagnostic Features

Feature F: Hearth Feature

A hearth feature was exposed in the north-east corner of unit 21K53J. Fire-cracked rock, charcoal, ash and calcined bone are associated with the feature. A large soil sample was collected. The ash staining continued in the south wall (Figure 26). It could be related to Feature G (Figure 27, see Figure 16).

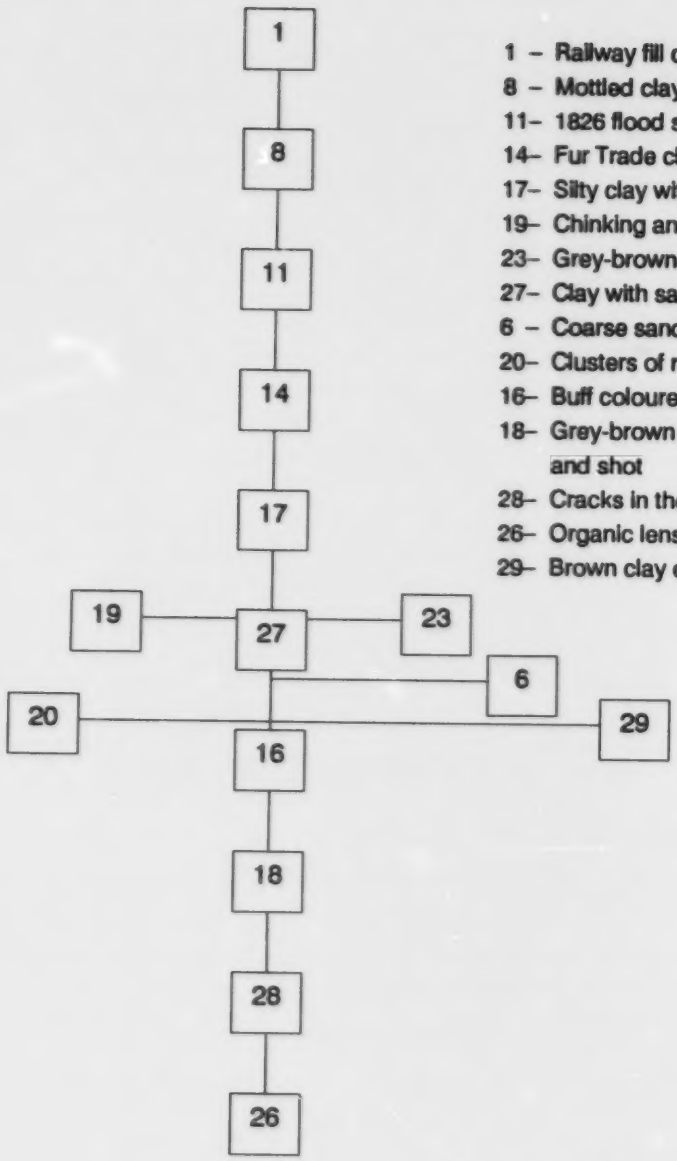
Feature G: Ash Staining Associated with Hearth

The stratigraphy, in units 21K52J, 21K52K and 21K53K, is very complex. It could be associated with the hearth (Feature F). The profile of the south wall of the excavation is complicated by rodent-hole disturbances, erosional and depositional features of the 1826 Flood and possible cultural disturbance. Further excavation, to the south of the perimeter wall, is required to fully explain the feature.

The dirt is loosely-packed, silty clay. Quantities of grey ash (Layer 22), ash staining, chinking and charred and calcined bone occur in irregular patches.

Feature H: Wood Chinking and Charcoal

This feature appears in units 21K54J, 21K54K and parts of unit 21K55K. It consists of large pieces of charcoal (Layer 26), burnt grey chinking, reddened chinking (Layer 20), large pieces of wood (Layer 19) scattered in different directions, and isolated




1 – Railway fill coarse sand
8 – Mottled clay, dark brown to tan
11– 1826 flood sands
14– Fur Trade clay, silts with organic stains
17– Silty clay with brown stains
19– Chinking and charcoal
23– Grey-brown clay
27– Clay with sand patches
6 – Coarse sand with pebbles
20– Clusters of red chinking
16– Buff coloured silty clay
18– Grey-brown clay with clusters of beads and shot
28– Cracks in the greasy dark clay
26– Organic lens with black charcoal
29– Brown clay of silt inclusions

Figure 24: Soil Profile of 21K54G

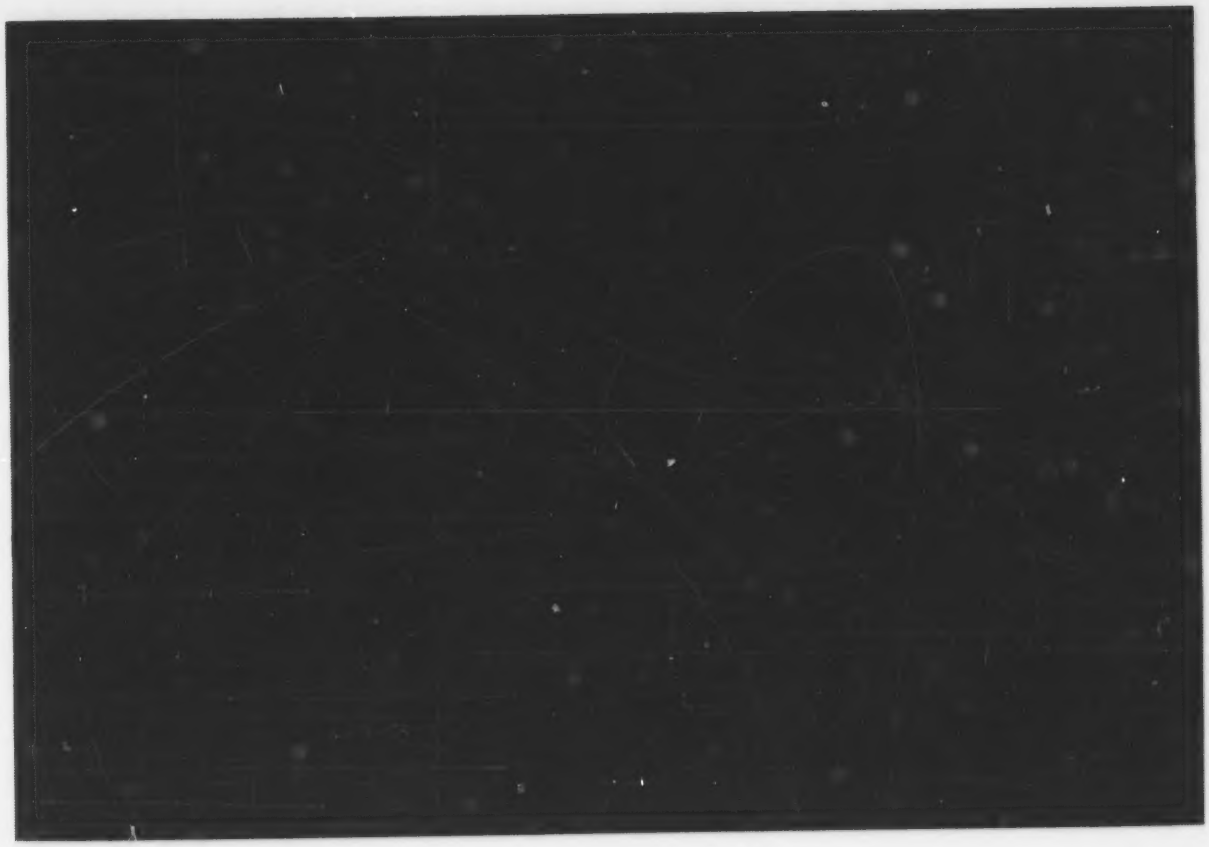


Figure 25: *In Situ* Bead Pattern

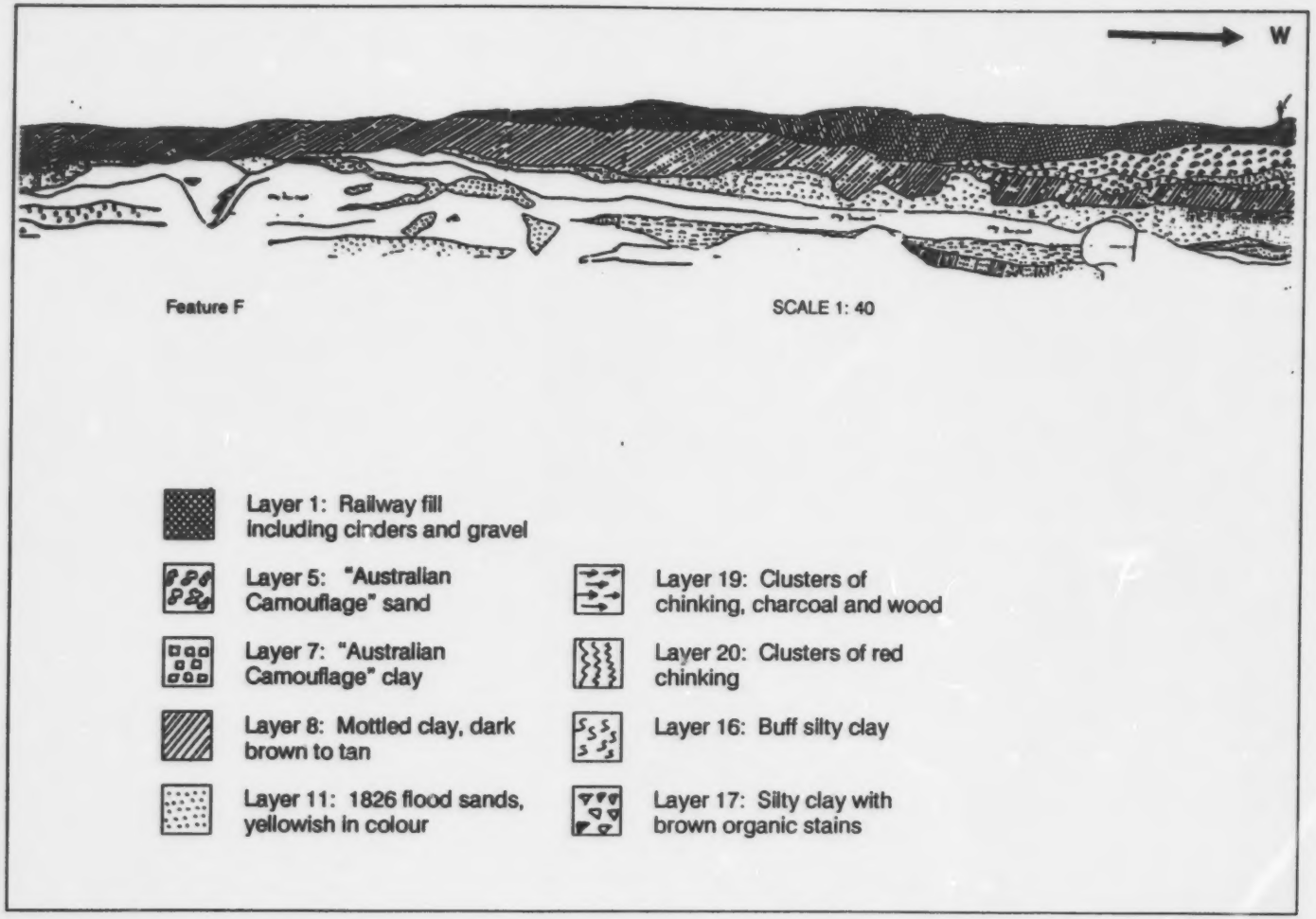

W
Feature F
SCALE 1: 40
Layer 1: Railway fill including cinders and gravel
Layer 5: "Australian Camouflage" sand
Layer 7: "Australian Camouflage" clay
Layer 8: Mottled clay, dark brown to tan
Layer 11: 1826 flood sands, yellowish in colour
Layer 19: Clusters of chinking, charcoal and wood
Layer 20: Clusters of red chinking
Layer 16: Buff silty clay
Layer 17: Silty clay with brown organic stains

Figure 26: South Wall Profile

Figure 27: Feature F

patches of sand. Larger pieces of charred timbers, orientated north/south, were exposed. It is difficult to ascertain if these are floor boards or parts of a collapsed wall. They are definitely part of a structure, probably secondarily deposited. The feature (Figure 28) has been left *in situ* and should not be removed until the surrounding units are excavated.

Feature I: Cellar Depression

Below the flood sands, in unit 21K55J, there is a grey-brown clay level (Layer 24) mixed with flecks of charcoal, and a lens of charcoal mixed with organic material (Layer 26). This level, covering the entire unit, dips towards the north-west (unlike the other stratigraphic layers of the excavation which tend to dip to the east). This may be part of a cellar depression, or a depression that has been filled in (Figure 29). Until the surrounding units are excavated, interpretation of this feature is tentative.

Feature J: Clusters of Chinking

In several of the units, excavated clusters of chinking (mostly reddened) were exposed. These were treated as features, and were removed in two of the units.

In some units, the chinking is mixed with charcoal (units 21K54E and 21K56J), bone (units 21K54F and 21K55C), ash (unit 21K53D) and stone (unit 21K55B). Chinking is distributed throughout the site. It should be noted that not all of the excavated chinking was collected, nor was all the exposed chinking excavated. Representative samples were collected, particularly the larger pieces which display imprints of organic material.

Feature K: Post Holes

Four post holes were excavated from units 21K54E, 21K54G, 21K52C and 21K55A. To date, no pattern has been noted but with further excavation identification may be possible. In units 21K54E (Figure 30) and 21K55G, the post holes are in the north-west corner of the units. In unit 21K55A, the post hole, occurring near the southern wall, is 15 cm in diameter and has a charcoal stain around the perimeter. The post hole in unit 21K52C appears to have been made by a sharpened wooden stake. It is about 43 cm deep, 8 cm wide at the top and tapers off to a point of about 1 cm at the bottom.

Feature L: Palisade/Trench Line Feature

Units 21K54A (Figure 31) and 21K55A provide evidence of what could be a palisade. A layer of buff silts, 3 cm to 15 cm, running adjacent to the north wall, slopes and tapers off towards the south wall of the unit forming what appears to be a trench (Figure 32). The north edge of the trench appears to be almost vertical, truncating several soil layers. The south and central portions of the trench appear to be in-filled with different sediments (Figure 33). The central portion of the feature contains a diamond-shaped, black organic deposit, which may be the decomposed remains of a vertical palisade pole. More likely, it is the residue of organic in-fill which, after the pole had been removed during the demolition of the palisade of Fort Gibraltar I,

entered the empty hole. Initial evidence suggests the presence of at least one other post hole in the trench, in addition to the post hole that is visible in the west wall of unit 21K53A. Further cross-sectioning of the unexcavated units is required.

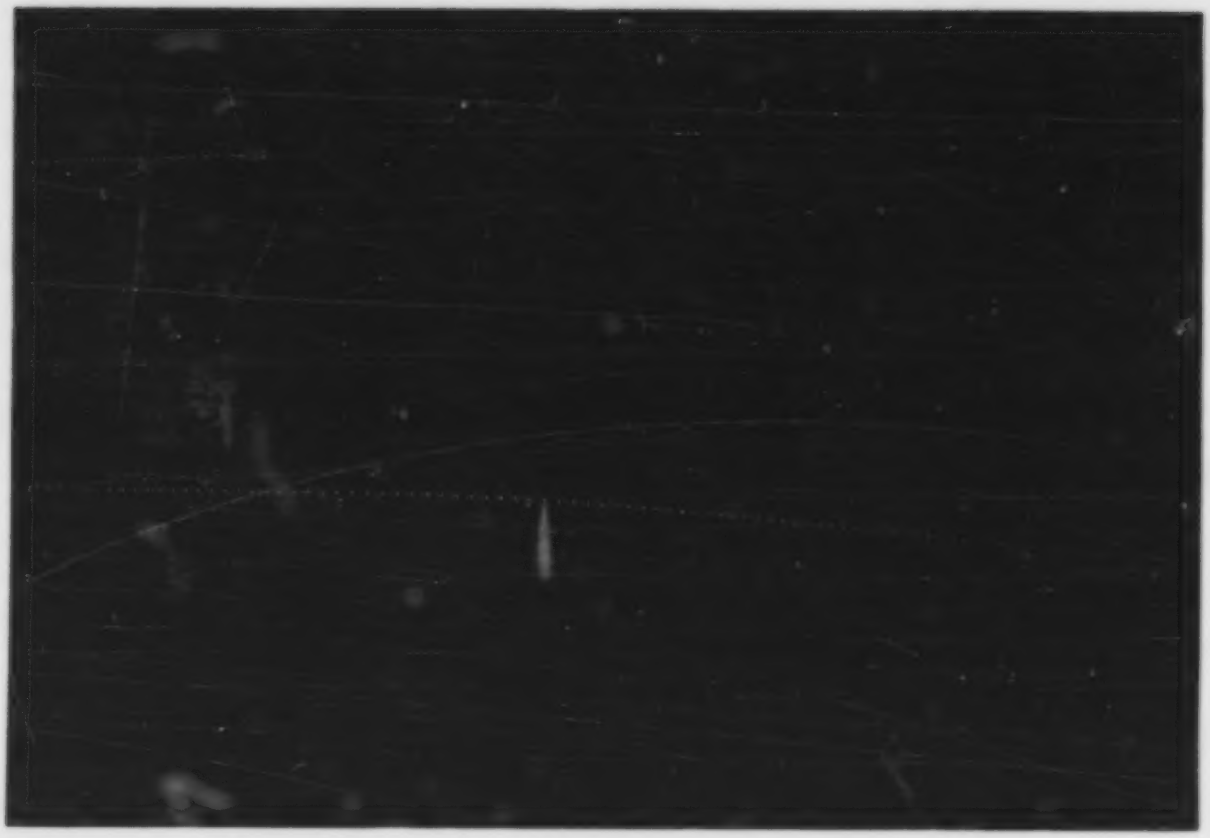


Figure 28: Feature H

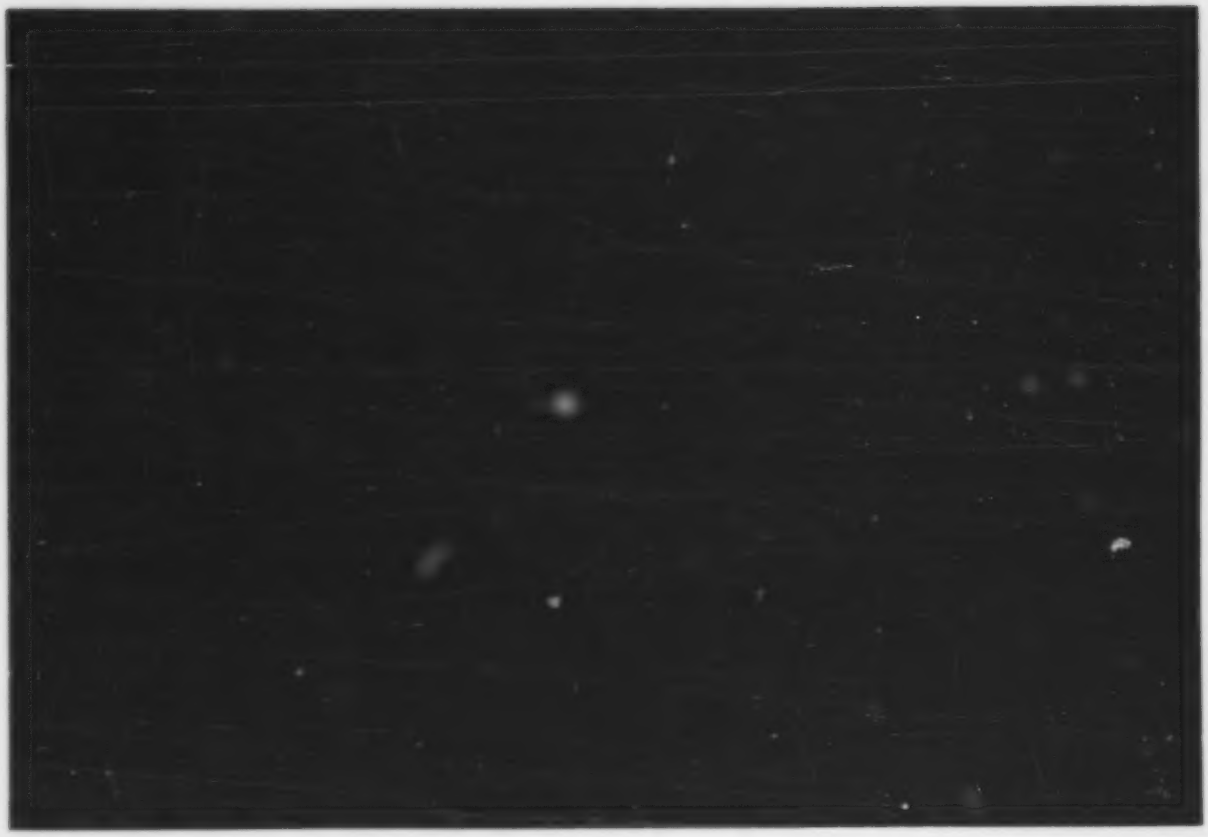


Figure 29: Feature I

1 – Railway fill
8 – Mottled clay, dark brown to tan
11– 1826 flood sands
14– Fur Trade clay, silts with organic stains
17– Silty clay with organic stains
20– Clusters of red chinking
27– Clay with sand patches
18– Beads and shot
16– Buff coloured silty clay
28– Greasy dark clay with cracks
21– Organic brown lens

Figure 30: Soil Profile of 21K54E

1 – Railway fill
8 – Mottled clay, dark brown to tan
10– Brown organic clay
11– 1826 flood sands
14– Fur Trade clay, silts with organic stains
21– Organic brown lens
17– Silty clay with brown stains
23– Grey-brown clay
16– Buff coloured silty clay

Figure 31: Soil Profile of 21K54A

Figure 32: Feature L

Figure 33: Section of Soil Profile – West Wall of 21K53A

## 5.0 CULTURAL MATERIAL DESCRIPTION

The artifacts recovered from The Forks site are described according to five episodes (events):

1. The Railway Period (1888-1988);
2. The construction of the B&B Building (1888/89);
3. The Pre-Railway and Post-1826 Flood Period (ca. 1826-1888);
4. The 1826 Flood;
5. The Fur Trade Period including the presence of Fort Gibraltar I (1810-1826).

A reiteration of the laboratory procedures is necessary for a better understanding of the process of artifact analysis. Artifact types such as mortar, chinking, charcoal and small shell were not always collected during excavation. For example, in the Fur Trade level, where large amounts of charcoal were present, only samples, for species determination, were gathered; the remaining charcoal was left in place. Discrimination was also applied when collecting naturally-occurring gastropod shells associated with the 1826 Flood, of which there were a considerable quantity. Picking all of these tiny shells from the wet-screen was too time-consuming for the scant information they provide.

Nor were all recovered artifacts saved. The retention of machine-manufactured items would have used considerable storage space without adding to the knowledge of the site. For example, keeping 1,000 specimens of 4" wire-cut nails provide no more data than keeping 10 examples and recording where the other 990 were recovered (FRC 1988:14). Similar culling procedures were conducted with bolts, burrs, washers, wire and unidentifiable corroded scrap metal. The provenience and quantity of all non-curated artifacts were recorded.

All recovered artifacts were collected by excavation unit and lot, placed in a labelled field collection bag and brought to the field laboratory for processing. The artifacts were washed and otherwise cleaned by material class. Metal artifacts, and very fragile faunal remains, were dry-brushed with toothbrushes and fingernail brushes. These artifacts would deteriorate further if they were washed in water. Perishable specimens, such as cloth, leather, and paper, were not cleaned. The nature of these artifacts warrants that special conservation techniques be applied to them. The remaining artifacts were washed, in water, using toothbrushes. The artifacts and their accompanying field collection paper bag were then placed on 1/4" mesh drying racks.

Once dried, all artifacts were sorted, by class, by the volunteers, according to the Canadian Parks Service system. The class determinations included: glass; window glass; historic ceramics; smoking pipes; nails; fasteners; metal,general; arms and ammunition; fauna; beads; Native ceramics; lithics; worked bone; miscellaneous, organic; and miscellaneous, inorganic. The latter two classes involved materials as diverse as wood, charcoal, seeds, leather, paper, chinking, mortar and bricks. The artifacts and

a paper tag, indicating the appropriate class, were placed in plastic bags and returned to the field collection paper bag.

These paper bags were then brought to the other laboratory trailer. Here, the artifacts were identified by the laboratory supervisor, the laboratory assistant and occasionally by those volunteers who expressed an interest in this level of analysis. Artifacts of the same type, such as vessels, and from the same provenience, were catalogued together. The level of identification was conducted according to data obtainable from available reference materials and staff expertise. The primary reference materials include: Amory (1969), Ashdown (1907), Chopping (1978), Clarke (1981), Gilbert (1973), Godden (1964), Lunn (1985), Olsen (1960, 1964), Scott and Crossman (1973), Sussman (1979) and Toulouse (1971).

The artifact descriptions in this section are listed by artifact class. As discussed in Section 3.6, these classes were established by the Canadian Parks Service to catalogue archaeological remains. When dealing with the class "glass," for example, bottle glass is generally described separately from other glass artifacts. This is because bottles possess identifiable portions and, often, manufacturer's marks. Figure 34 illustrates these bottle portions. They are defined below, using Jones and Sullivan *et.al.* (1985:76,78).

**Finish:** Consists of the bore, lip, and, if there is one, string rim. The finish can be one-part (lip only), two-part (lip and string rim) or three-part (lip, string rim and a third element).

**Bore:** The opening at the top of the container, including any configuration inside the top of the neck.

**Lip:** The external, upper part of the finish.

**String Rim:** The protruding ledge or ring near the top of the neck.

**Neck:** The narrowest portion of the container between the finish and the shoulder.

**Shoulder:** The widening part of a container that joins the neck or finish to the body.

**Body:** The main part of a container, used to enclose the contents.

**Heel:** The area at the bottom of a container, usually a curve or a corner, that joins the body to the resting point.

**Resting Point:** The portion of a container that rests on a surface when the container is standing upright.

**Base:** The bottom of the container. The term is used to indicate the area inside the resting point.

**Push-up or Kick-up:** A deep basal indentation. The term is not suitable for a base with a slight indentation.

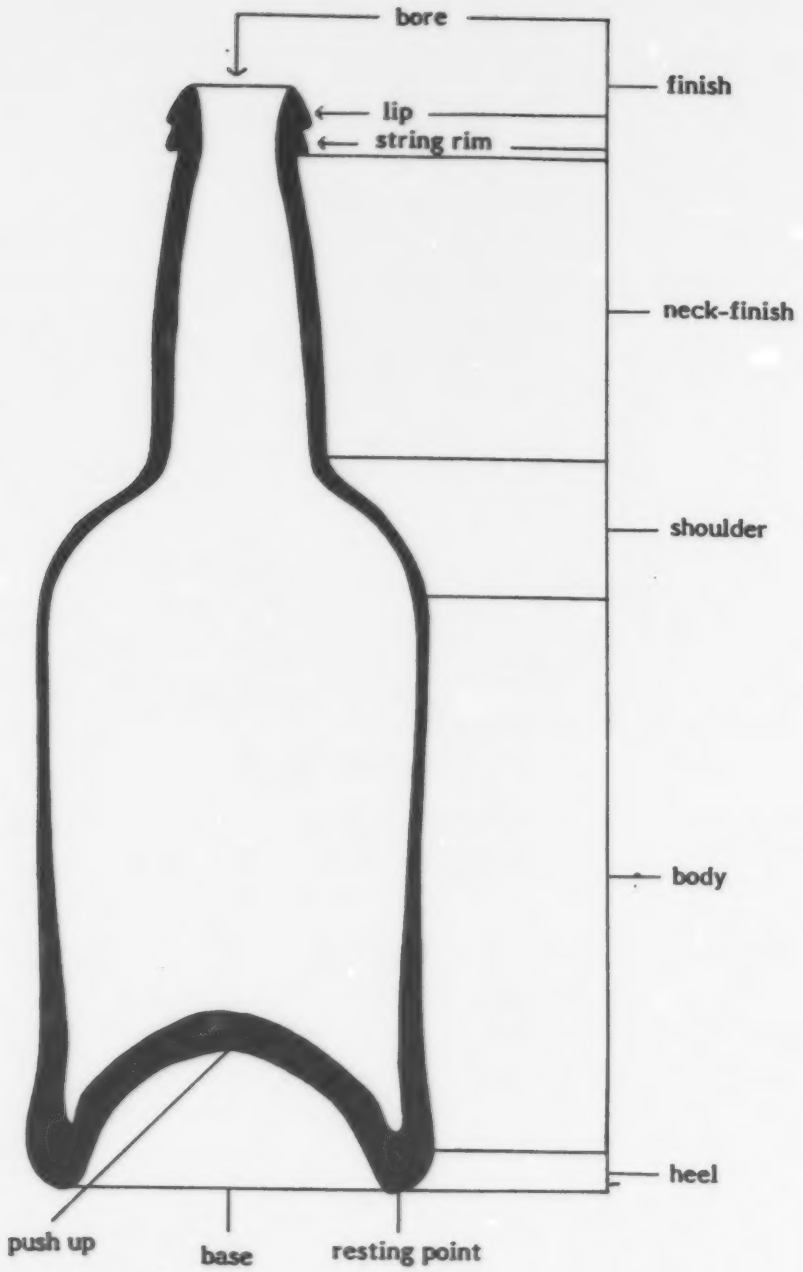



Figure 34: Parts of a Bottle (Jones & Sullivan *et al.* 1985: 77)

All faunal remains were identified as specifically as possible as to element, age of individual and species. The presence of butchering marks, such as cutting or sawing, was recorded. It was also noted if the remains were burnt, calcined or copper stained.

Specimens were identified, where possible, to the lowest taxonomic level. Since many of the remains were small, incomplete fragments, however, identification was rarely possible beyond Class. Class (mammal, fish, bird, etc.) could not be determined for many of the faunal remains. In addition to reference publications, access to faunal reference specimens was provided by the Manitoba Museum of Man and Nature.

Within mammal and bird classes, size ranges were used to provide additional data. The main categories used were 'small,' 'medium' and 'large.' Large mammals refer to cow, bison, deer, moose, elk, bear, pig, sheep and goat. Medium mammals include beaver, muskrat. dog, wolf, coyote, fox, rabbit, hare, porcupine, skunk and cat. Small mammals include squirrel, chipmunk, mouse and shrew. Split-hoofed animals (Artiodactyla) were assigned to large or small, to differentiate between the undetermined elements of the large 'cow/bison/moose/elk' group and the smaller, domesticated group of 'pig/sheep/goat.' Large birds include swan, goose, hawk, eagle, loon and heron. Medium birds range in size from the kingfisher to the duck. Small birds are the size of sparrows and warblers (FRC 1989:143). When it was not possible to identify one of the main categories, remains were designated as 'small/medium' or 'medium/large.'

Some recovered faunal remains were naturally-deposited. These include 'frogs/toads,' small rodents, snails and fingernail clams. Snails and clams were abundant during flood episodes, and in particular, the 1826 flood. The presence of 'frog/toad' and small rodent fragments are probably the result of the animals dying during hibernation in holes in the soil (FRC 1989:145).

The faunal remains are presented in each event section with a table and an accompanying written description.

D.M. Deck and Dr. C.T. Shay identified the seeds recovered during excavation. Their report appears in Appendix B. A shorter description appears within the text under 'Miscellaneous, Organic.'

## 5.1 Railway Period (1888-1988)

Although much of the railway fill was removed by the Drott, numerous artifacts associated with the Railway Period remained. Many of the metal artifacts were culled. Most of those which were inventoried are associated with locomotives, rail cars and machinery, perhaps from the B&B Building.

A total of 1,947 artifacts, excluding 91 faunal remains, were recovered from the Railway Period (Table 2). The relative frequency of the analytic catagories is displayed in Figure 35.

| ARTIFACT CLASS | QUANTITY |
|---|---|
| Window Pane | 995 |
| Glass | 853 |
| Metal, General | 42 |
| Nails | 22 |
| Fasteners | 12 |
| Historic Ceramics | 5 |
| Smoking Pipes | 1 |
| Miscellaneous, Organic | 14 |
| Miscellaneous, Inorganic | 2 |
| Arms and Ammunition | 1 |
| **TOTAL** | **1947** |

Table 2: Railway Fill Artifact Quantities

### 5.1.1 Glass

There were 853 glass fragments recovered. These can be separated as: 92 bottle sherds; 176 lamp chimney sherds; 15 coloured lantern sherds; 12 water gauge tube fragments; 5 miscellaneous glass artifacts; and 553 undiagnostic, but probably bottle, sherds. The identified bottle fragments are described below in terms of the characteristics of the portion.

#### 5.1.1.1 Finishes

Six bottle finishes were found. Two (21K50A99-7,19) are clear and are possibly from soft drink bottles (Figure 36); 21K50A99-7 was manufactured in a turn-mold and 21K50A99-19 was machine-made. Two other specimens (21K50A99-92, 100) are brown, were manufactured in a turn-mold and could be from beer bottles (Figure 36). One finish (21K50A99-51) is light green, machine-made and falls under the general class of beverage bottles. A clear, devitrified finish with part of the shoulder present (21K50A99-93) may be part of a whiskey or medicine bottle (Figure 36).

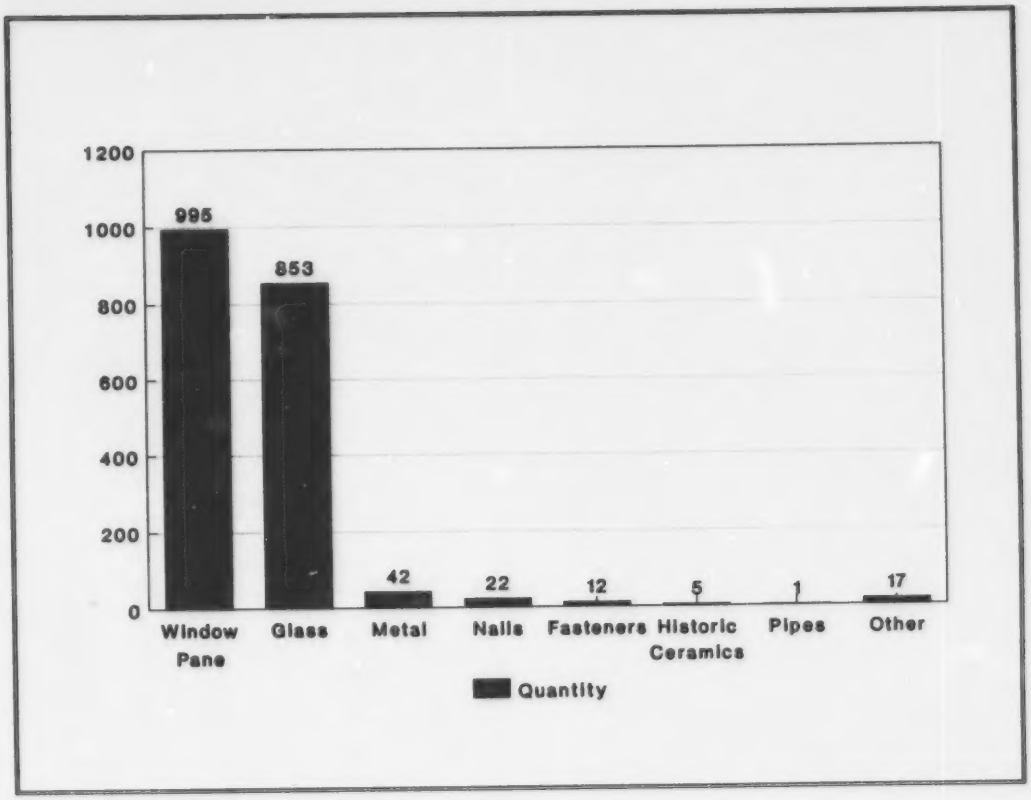



Figure 35: Railway Fill Artifact Quantities

Figure 36: Bottle Finishes and Stoppers

Left to right: Devitrified Finish (21K50A99-93); Brown Finish (21K50A99-92); Clear Finish (21K50A99-19); Brown Stopper (21K50A99-38)

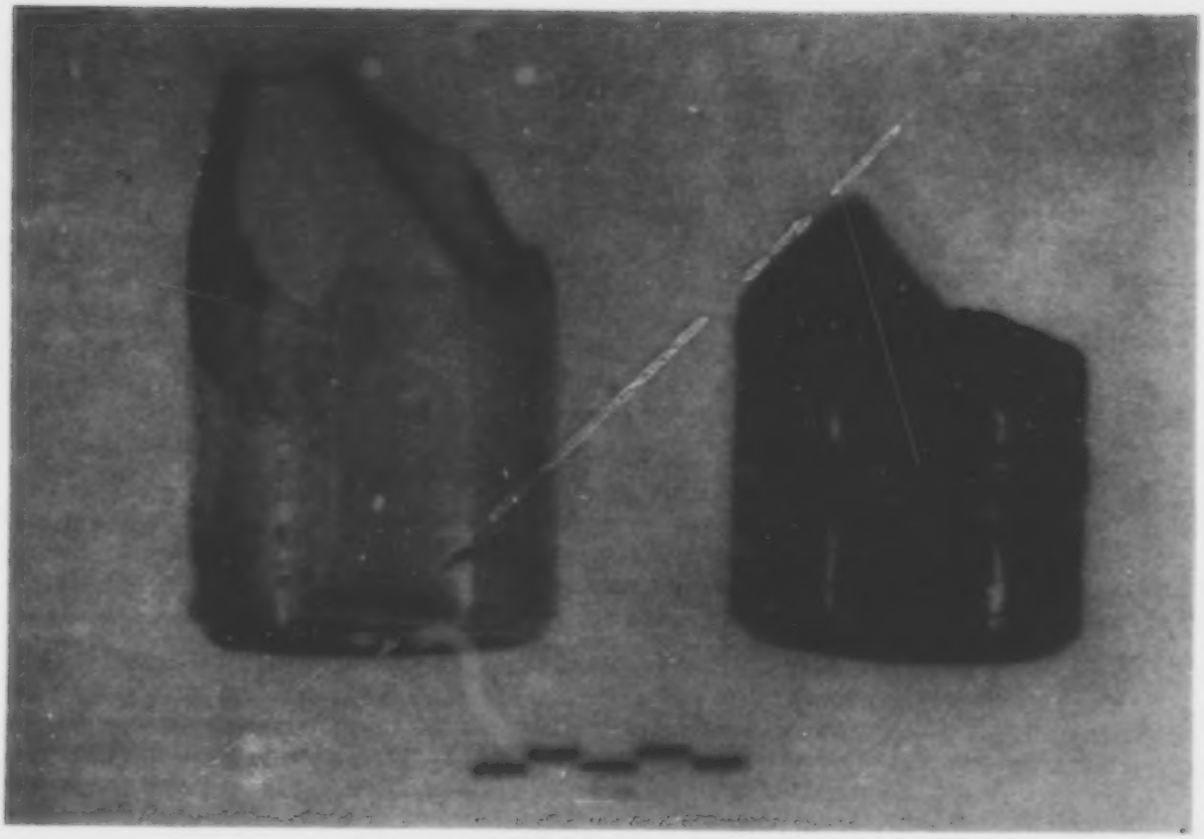


Figure 37: Beverage Bottle Bases

Left to right: Drewry's (21K50A99-32); McDonagh & Shea (21K50A99-42)

#### 5.1.1.5 Reconstructed Bottles

Two brown, reconstructed, nearly complete book-type flasks (21K50A99-24, 70) were recovered (Figure 38). They were manufactured by a cup-bottom mold and probably contained liquor. The mold numbers "159" and "159C" are embossed on the bases. These numbers are associated with the Sydenham Glass Company of Toronto (Miller and Jorgensen 1986:49).

A "case gin" bottle is represented by inventory numbers 21K50A99-115, 21K50A99-2578 and 21K50A99-2579. There are 47 dark olive green sherds present including the finish, part of the base and numerous body fragments. These body sherds are characteristically ribbed and the bottle is squarish in shape.

#### 5.1.1.6 Other Glass Artifacts

Part of a jar or tumbler (21K50A99-132) was curated. It is clear, with a 7 mm ribbed band beginning 10 mm below the lip.

Two sealer lids (21K50A99-71) were found. One is green and the other is aqua. Both measure 72 mm in diameter and are "outer seal types" (Figure 39).

Specimen 21K50A99-21 consists of 171 clear, thin glass sherds, some reconstructed to form a lamp chimney. Other lamp chimney fragments are a clear, thick rim fragment (21K50A99-21) and four clear, scalloped rim sherds (21K50A99-746) (Figure 40).

Fourteen fragments of ruby red flashed glass (21K50A99-25, 43, 75) were recovered. These are probably part of a rail lantern or signal light (Figure 40). A blue rail signal light is represented by 21K50A99-72 (Figure 40).

There are 12 aqua fragments of water gauge glass tubing (Figure 41). These water gauges were associated with steam power systems (Amory 1969:652). They probably occurred on steam-driven locomotives. Light bulb filament and base fragments (21K50A99-3) were also retrieved. The other identifiable glass artifact is a white, opaque button (21K50A99-86). It has two holes in a depressed centre and measures 7 mm in diameter (Figure 41).

Undiagnostic glass consists of two white, 33 green, 75 clear, 297 clear melted and 146 amber/brown sherds. Most, if not all, of these fragments could be bottle glass.

### 5.1.2 Window Glass

There were 995 sherds of flat pane glass collected. None of these has a pattern or is reinforced.

### 5.1.3 Historic Ceramics

A large shoulder/neck sherd (21K50A99-29) from a stoneware jug was recovered (Figure 42). It has an improved salt glaze/slip North American, with a dark brown slip/glaze on the interior. The exterior has a brown slip/glaze on the neck and is a buff colour on the shoulder. The sherd measures 157 mm across and is 95 mm high.

Figure 38: Reconstructed Flask Bottle (21K50A99-70)

Figure 39: Glass Sealer Lids (21K50A99-71)

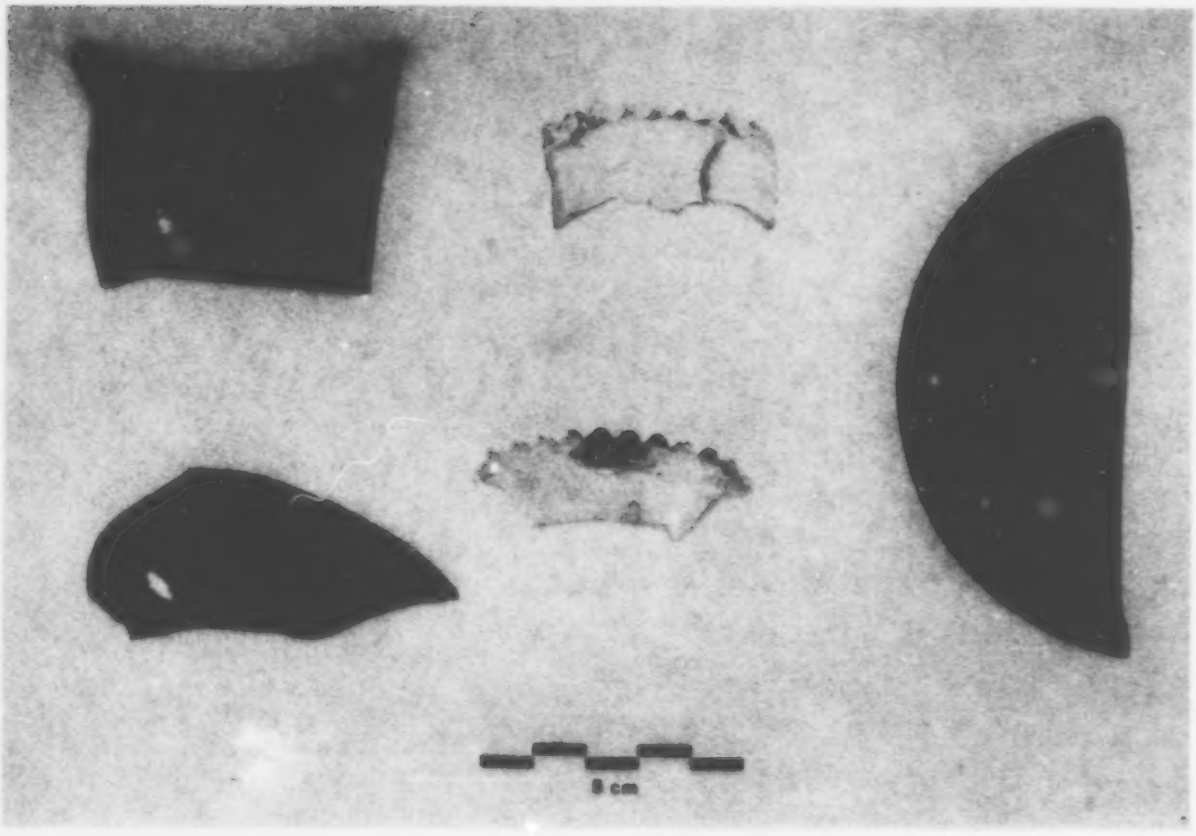



Figure 40: Miscellaneous Glass Artifacts

Left: Red Lantern or Signal Light (21K50A99-43); Middle: Scalloped Lamp Chimney (21K50A99-746); Right: Blue Signal Light (21K50A99-72)

Figure 41: Assorted Railway Fill Artifacts

Left: Water Gauge Glass Tubing (21K50A99-41); Middle: Water Gauge Glass Tubing (21K50A99-41), Kaolin Pipe Bowl (21K50A99-91), White Glass Button (21K50A99-86); Right: Gas Jet Sleeper Valve (21K50A99-44), Metal Label (21K50A99-23)

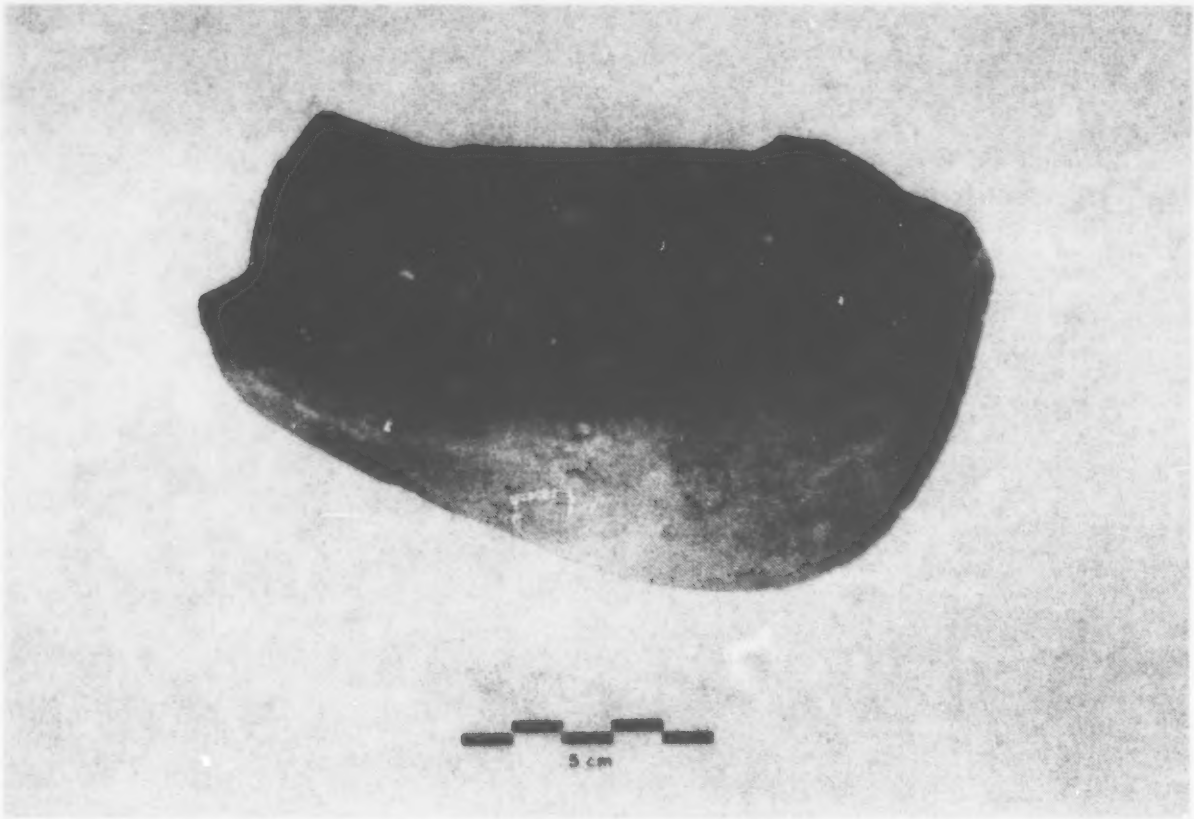



Figure 42: Stoneware Jug Shoulder Sherd (21K50A99-29)

Specimen 21K50A99-77 is another jug/crock portion. The ware is an improved glaze North American with the entire upper portion of the vessel represented, including the rim, neck, shoulder, handle and a portion of the body (Figure 43). Three more sherds (21K50A99-10, 40), probably belonging to the same vessel, were collected. Another small stoneware sherd with an improved salt glaze/slip North American was recovered. It has a brown slip/glaze on the interior and the exterior. These vessels could have contained a variety of liquids including liquor, vinegar or ink.

### 5.1.4 Smoking Pipes

Specimen 21K50A99-91 is a kaolin pipe bowl fragment. It has a pattern of incised lines and embossed knobs (Figure 41). This pattern has not been identified to a manufacturer or time period.

### 5.1.5 Nails

Fourteen sheet-cut (or machine-cut) nails were recovered from the railway fill. Nine of these (21K50A99-2) are incomplete, with the heads missing. The head types of four other incomplete nails are common, L-head, T-head and flat upset. The L-head and T-head nails had a specific function such as flooring. One complete specimen (21K50A99-3594) was curated. It has a common square head and glass fragments rusted to it, and is 150 mm long (Figure 44).

Two complete, possibly hand-wrought, nails (21K50A99-3592) were recovered. These have common reinforced heads; each is 150 mm long. There are five incomplete nails which are so corroded that the type and method of manufacture cannot be determined.

Four railway spikes were recovered. One (21K50A99-36) was kept as a representative sample (Figure 44). It is sheet-cut, has a small head for a spike and is 162 mm in length.

### 5.1.6 Fasteners

Several varieties of fasteners were inventoried: two washers, three burrs, one bolt, three wood screws, two rivets and a cotter/hinge pin. All, excluding one rivet, are ferrous. The screws have flat, round, slotted heads with straight, threaded shanks. They are complete. Two measure 40 mm long and the third is 110 mm long.

The copper rivet (21K50A99-13) has a flat, round head, a straight shank and is 14 mm long. The ferrous rivet (21K50A99-89) also has a flat, round head, but is short (9 mm long) and squat.

### 5.1.7 Metal, General

As previously discussed, many large metal items were present from this period. Forty-two of the more diagnostic artifacts were inventoried. Unless otherwise noted, they are manufactured of copper.

Specimen 21K50A99-67 is a large, cast pipe plug with internal and external threads. Three sleeves, 50 mm in diameter, two spacers and a pipe fitting were found. Three tube/pipes (21K50A99025, 32, 59), probably used for air or gas, were located. Two

Figure 43: Stoneware Jug Neck Sherd (21K50A99-77)

Figure 44: Assorted Metallic Artifacts

Top: Wick Holder (21K50A99-75), Common Nail (21K50A99-3594);
Bottom: Serrated Copper Artifact (21K50A99-60), Railway Spike (21K50A99-36)

gas jet sleeper valves (21K50A99-11, 44) were inventoried (Figure 41). A gasket seal (21K50A99-81), with an inner diameter of 27 mm and an outer diameter of 55 mm, was found. There are two, flat solid disks (21K50A99-73); one is 24 mm in diameter, the other, possibly made of brass, has a diameter of 26 mm. A flat, serrated, tapered fragment (21K50A99-60), 25 mm long and 9 mm wide at the proximal end, has an unknown function (Figure 44). A handle (21K50A99-26), with part of a ferrous rim around it, possibly belongs to a can.

Two wick holders (21K50A99-75), made of copper and ferrous metal, were retrieved (Figure 44); one is complete. Specimen 21K50A99-69 is an iron meat cleaver with a handle 50 mm long and a blade 168 mm long by 95 mm wide (Figure 45). Three iron strip/straps, with a ring on one end of each, were found. Other strip/straps include a flat, iron fragment with rounded ends (21K50A99-99) and a lead piece (21K50A99-114), 72 mm long and 24 mm wide. Other iron artifacts are a large J-shaped hook (21K50A99-78), a mesh piece (21K50A99-80) and seven springs (21K50A99-34) from a chair or seat.

Additional metal artifacts consist of a circular lead fitting, 10 mm wide with an outer diameter of 85 mm; five unidentifiable white metal fragments; a copper eraser holder (21K50A99-108) from a pencil; and a yellow metal label (21K50A99-23) stamped with "A PERFECTION GUARANTEED.../IN ANY WIN.../PAT'D 1900" (Figure 41). This artifact provided a minimal date for the Blacksmith dump feature.

### 5.1.8 Arms and Ammunition

A brass or copper shotgun shell base (21K50A99-66) was found. It is too corroded to identify the gauge or the manufacturer.

### 5.1.9 Miscellaneous, Organic

Fourteen artifacts are catalogued under this class. Specimens 21K50A99-8 and 21K50A99-79 are fragments from two leather gloves. One leather fragment (21K50A99-61) with two brass rivets was curated. Two S-shaped rope fragments and a woven cloth fragment (21K50A99-94) were inventoried. There are also two tar-paper pieces (21K50A99-83, 96) from a box car or building roofing and five hard rubber or synthetic items. A newsprint fragment (21K50A99-28) requires conservation to ascertain the text.

### 5.1.10 Miscellaneous, Inorganic

Two large pieces of chinking, weighing 39.7 gm, were retrieved.

### 5.1.11 Fauna

There were 91 faunal remains recovered from the Railroad Period; one bird rib and 90 mammal bones (Table 3). Eighty-two of the bones are identified as large mammal. There is one skunk vertebra and one Artiodactyla epiphysis from an undetermined element. Two of the specimens are sawn vertebrae, evidence that some butchering occurred.

Figure 45: Meat Cleaver (21K50A99-69)

| IDENTIFICATION | QUANTITY | |
|---|---|---|
| **MAMMAL** | | **90** |
| Large Mammal | 82 | |
| Medium/Large Mammal | 6 | |
| Undifferentiated Artiodactyla | 1 | |
| Skunk | 1 | |
| **BIRD** | | **1** |
| Medium/Large Bird | 1 | |
| **TOTAL FOOD REMAINS** | | **91** |

Table 3: Identification of Railway Fill Faunal Remains

### 5.1.12 Culled Artifacts

There were 111 wire-cut nails, three railway spikes, 18 washers, 26 bolts, 19 nuts, six pipe fragments, 44 pieces of wire and 271 unidentifiable, extremely corroded metal fragments that were not catalogued. As all Railway Period artifacts are the result of secondary deposition, the frequency of artifacts or artifact classes could not be used to determine site-specific activities and/or activity areas. Accordingly, the culled specimens were not included in the artifact summaries, which compile the inventoried artifacts. The inclusion of these specimens would indicate only that railroad and building activities occurred at The Forks, already known facts.

## 5.2 B&B Construction (1888/89)

Excluding 386 faunal remains, a total of 186 artifacts were recovered from the strata associated with this period (Layers 3-7). The quantity of each analytic catagory is shown in Figure 46. The frequency of each catagory is illustrated in Figure 47.

### 5.2.1 Glass

Thirteen bottle fragments were found. One (21K55H1-2210) is a clear finish. One (21K55K2-714) is a green base and body sherd, perhaps from a soft drink or alcoholic beverage bottle. The remaining 11 bottle fragments consist of five brown, one amber, one green, one clear and three olive green body sherds, one of which is from a "case gin" bottle.

There are four red railway lantern fragments. One (21K56F1-898) is from a rim (Figure 48). A small, 7 mm diameter sphere (21K56J1-1601) and a clear sherd (21K56A2-984), with a diamond embossed pattern on its slightly concave interior, were also found.

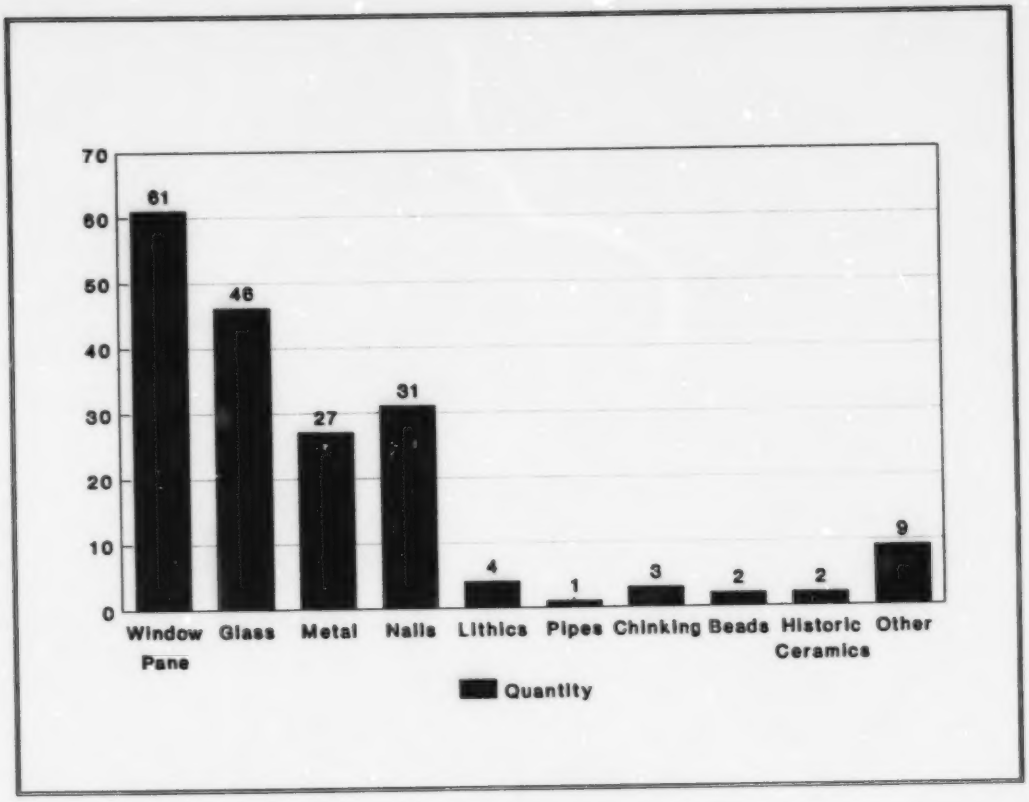



Figure 46: B&B Construction Artifact Quantities

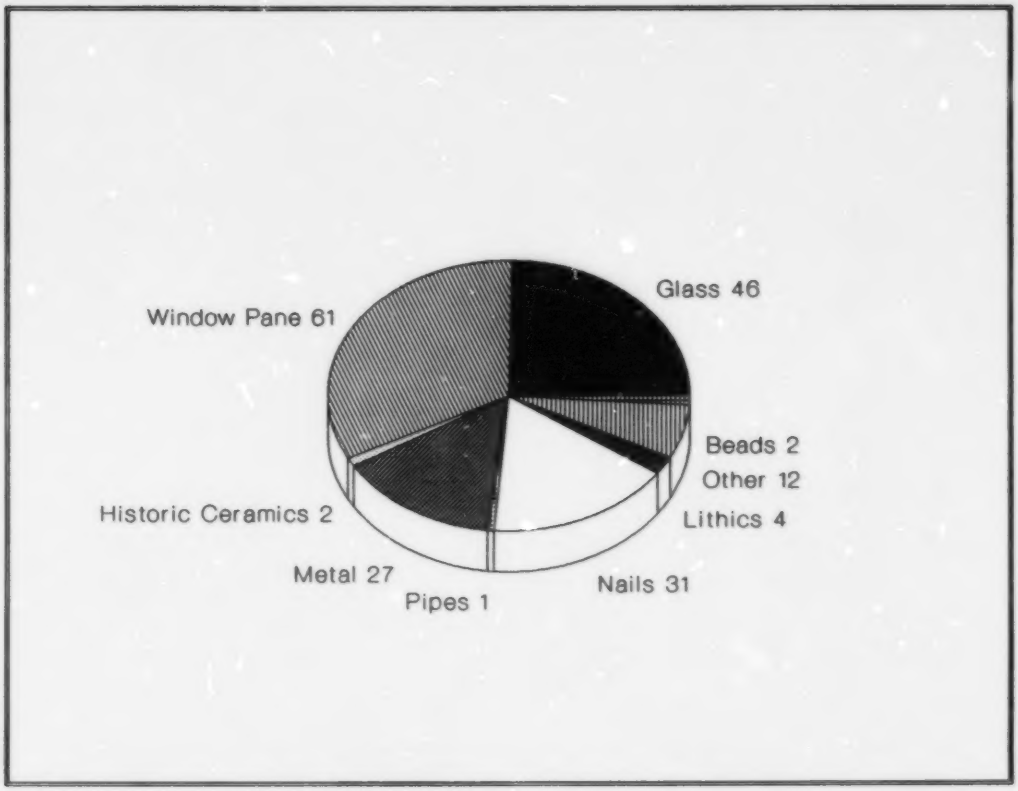



**Figure 47: B&B Construction Artifact Frequencies**

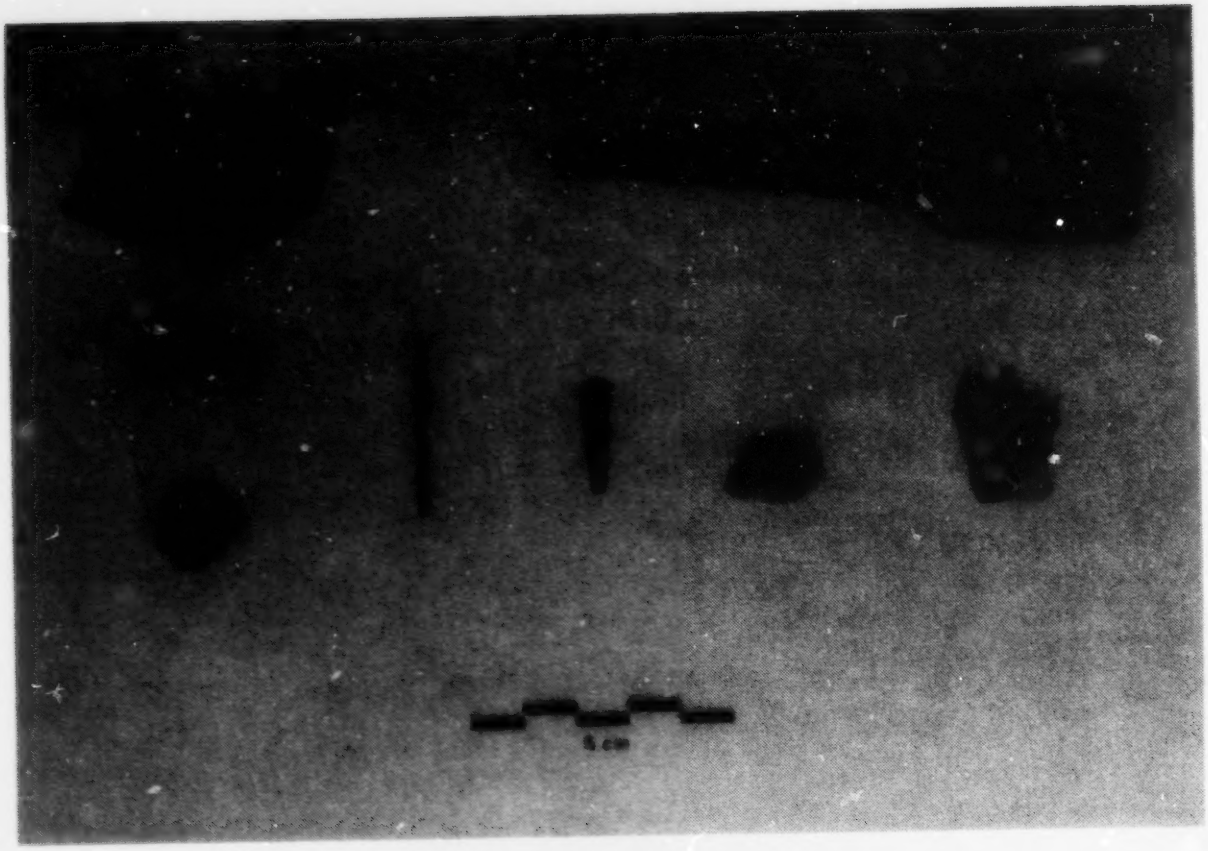


Figure 48: Selected Artifacts from B&B Construction

Top (left to right): Red Lantern Glass or Signal Light (21K56F1-898), File Fragment (21K57A1-536); Bottom (left to right): Kaolin Pipestem (21K55D1-2133), Ferrous Button (21K55D1-2130), Ferrous Awl (21K56D1-432), Copper Tinkling Cone (21K58A5-2218), Gunflint (21K58A7-2217), Woven Cloth Fragment (21K57A1-537)

There are 27 undiagnostic glass fragments: nine clear, nine green, one yellow, one amber, one aqua and six melted sherds.

### 5.2.2 Window Glass

Of the 61 fragments of flat glass found, 43 are clear and 18 are green.

### 5.2.3 Historic Ceramics

There are two small, white glazed earthenware body sherds. They are identified tentatively as tableware.

### 5.2.4 Smoking Pipes

One 12 mm long kaolin pipestem fragment (21K55D1-233) was found (Figure 48).

### 5.2.5 Nails

Thirty-one nails, all ferrous, were recovered from this period. Twenty-one of these are hand-wrought; 13 are incomplete without heads, seven are incomplete common nails and one is a complete common nail 80 mm long. Of the 10 sheet-cut nails, six are incomplete without heads, two are incomplete finishing nails and two are complete common nails, 66 mm and 23 mm long. One complete ferrous tack was recovered.

### 5.2.6 Metal, General

Twenty-seven artifacts of various types comprise this category. A nearly complete, but badly corroded ferrous button (21K55D1-2130), 15 mm in diameter, was found (Figure 48). A complete ferrous bi-pointed awl (21K56D1-432), 35 mm long (Figure 48), was recovered. A half-round file fragment (21K57A1-536) (Figure 48), with a 70 mm long tang and a 40 mm long by 28 mm wide body, was inventoried. A strip/strap (21K55H1-654) with five rivets, 108 mm long and 25 mm wide, a solid cylindrical item and a flat triangular piece comprise the remainder of the ferrous metal artifacts.

A copper tinkling cone (21K58A5-2218), 20 mm long and ranging from 2 mm to 4 mm in diameter, was excavated (Figure 48). Other copper artifacts consist of: 11 badly corroded fragments; a flat triangular item; an approximately circular flat disc, 34 mm in diameter; and a thin ring (21K56C1-805), with an outer diameter of 10 mm and a width of 2 mm. A grey metal strip/strap and five grey metal fragments were also found.

### 5.2.7 Arms and Ammunition

A flattened lead shot (21K55K1-270), 18 mm long by 14 mm wide by 9 mm thick, was found in unit 55K1.

### 5.2.8 Miscellaneous, Organic

A piece of brown woven cloth (21K57A1-537) was retrieved. It measures ca. 22 mm x 16 mm and appears to be made of wool (Figure 48). Two leather fragments and five small fragments of charcoal were also found.

### 5.2.9 Miscellaneous, Inorganic

Three pieces of chinking were recovered. One is burnt. One (21K56A2-989) is a larger reddened specimen, weighing 30 gm.

### 5.2.10 Lithics

A chert thinning flake, a quartzite flake and a chalcedony flake were found. In addition, a chalcedony (?) gunflint (21K58A7-2217), manufactured from non-local lithic sources, was found. The measurements are 18 mm long, 14 mm wide and 10 mm high (Figure 48).

### 5.2.11 Beads

Only two beads were found in the strata associated with this period. Both are made of glass. One is white and of the Type IIa "seed" variety (Kidd and Kidd 1970). The other, black and cylindrical, is 4 mm long.

| IDENTIFICATION | QUANTITY | |
|---|---|---|
| **MAMMAL** | | **59** |
| Large Mammal | 2 | |
| Medium/Large Mammal | 27 | |
| Small/Medium Mammal | 1 | |
| Small Mammal | 16 | |
| Undifferentiated Mammal | 7 | |
| Small Rodent | 3 | |
| Rabbit | 2 | |
| Muskrat | 1 | |
| **BIRD** | | **6** |
| Large Bird | 1 | |
| Medium Bird | 2 | |
| Undifferentiated Bird | 3 | |
| **AMPHIBIAN** | | **144** |
| 'Frog/Toad' | 144 | |
| **FISH** | | **48** |
| Undetermined Species | 47 | |
| Sturgeon | 1 | |
| **GASTROPOD** | | **2** |
| **SHELLFISH** | | **23** |
| Freshwater Clam | 13 | |
| 'Fingernail/Pea' Clam | 10 | |
| **UNDETERMINED CLASS** | | **104** |
| **TOTAL FOOD REMAINS** | | **386** |

Table 4: Identification of B&B Construction Faunal Remains

### 5.2.12 Fauna

There are 386 faunal remains inventoried from this period (Table 4). Butchering marks were not observed on any of the elements. There are 59 mammal remains including two rabbit teeth and one muskrat skull fragment. Six bird and 48 fish remains were recovered. Many of the specimens were so small and fragmented as to preclude identification of class (Figure 49). Naturally-occurring remains included amphibians, fingernail clams and snails. There were 144 'frog/toad' bones. This high number is not surprising; these animals prefer to hibernate in sandy soils close to the surface, and may have become trapped and died.

### 5.2.13 Culled Artifacts

Culled artifacts include 11 round wire-cut nails, two bolts, one burr, two wire fragments and 60 unidentifiable pieces of metal scrap.

## 5.3 Pre-Railway and Post-1826 Flood

The Pre-Railway/Post-1826 Flood Period, dating between the Railway Period (1888) and the 1826 Flood, is represented in every excavated unit. Included within this period are the Immigration Shed/Shanty Town (1872-1885) and the Hudson's Bay Company Experimental Farm (1836-1848) phases. The majority of recovered artifacts are nails (389) and glass fragments (1172) (Figure 50). There are also 16 buttons and 49 historic ceramic sherds.

Excluding 2,661 faunal remains, a total of 2,050 artifacts were recovered from this period. The frequency of each category is shown in Figure 51.

### 5.3.1 Glass

There are 651 glass items. Of these, 334 are bottle glass and are described below.

#### 5.3.1.1 Bottles

A portion of a mold-blown, olive green wine bottle was found (Figure 52). The manufacturing technique of this type of bottle was introduced in 1822 (Jones and Sullivan *et al.* 1985: 30). This technique was used until the late 19th century. The finish, with an outer lip diameter of 25 mm and an inner diameter of 20 mm, consists of five reconstructed fragments from 21K52B1. There are also 39 thinner fragments, probably from the neck and the body, from this unit. Specimen 21K55B1-130 consists of seven reconstructed base and body fragments. The outer basal diameter is approximately 75 mm, the kick-up is 40 mm high and the maximum reconstructed body height is 145 mm. Many other olive green fragments from various nearby units are also probably part of this bottle.

Five other bottle finishes were recovered: an aqua fragment (21K53B1-1013); a light green fragment (21K55G2-2147); two green fragments (21K54G1-2363), which fit together; and a complete finish and neck portion (21K57B5-1109). The finish extends down 7 mm from the lip and the neck is 37 mm long. The remaining finish (21K56D3-

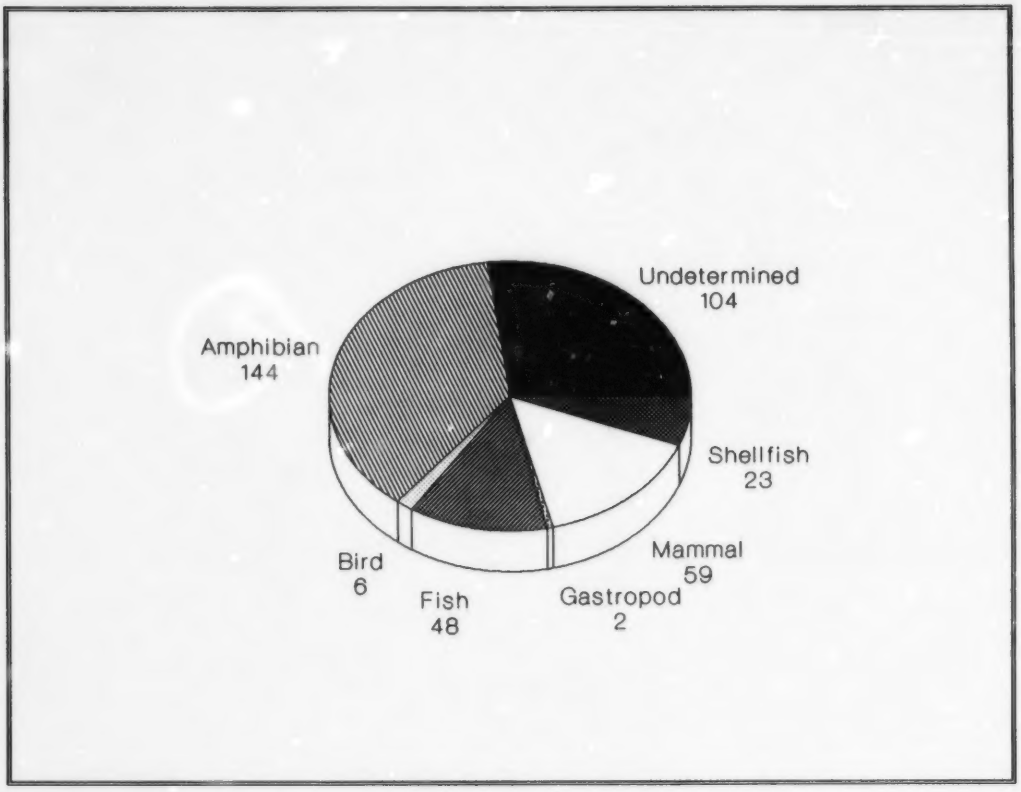



**Figure 49: B&B Construction Faunal Frequencies**

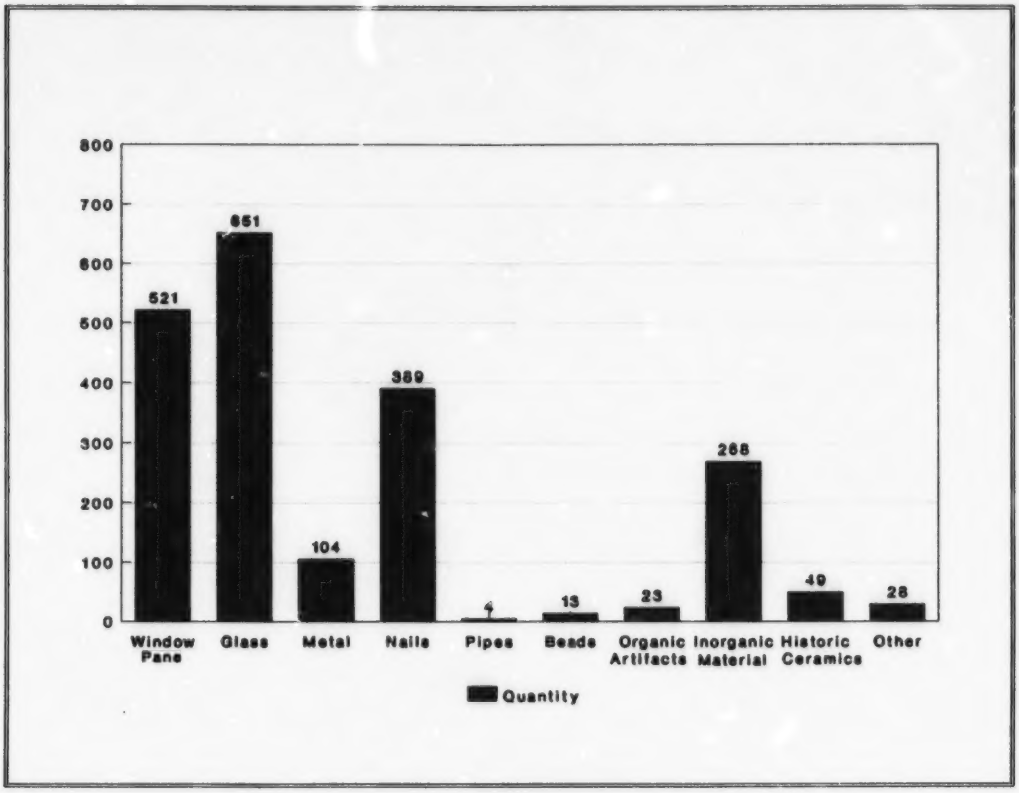



Figure 50: Pre-Railway/Post-1826 Flood Artifact Quantities

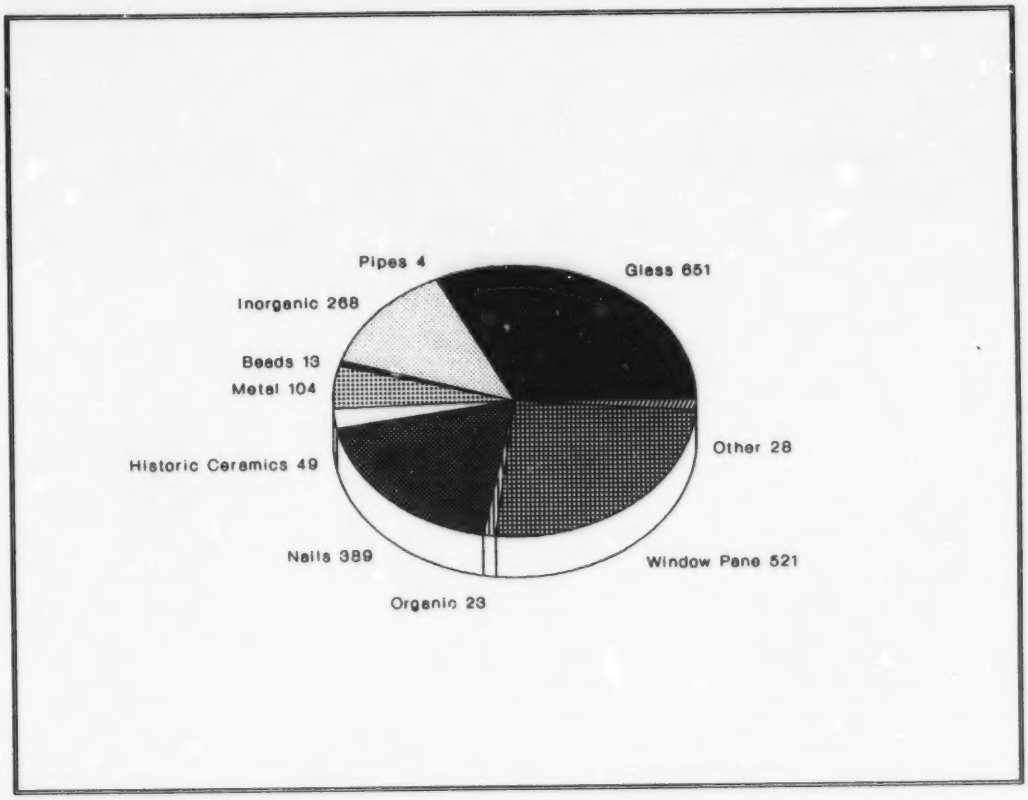



Figure 51: Pre-Railway/Post-1826 Flood Artifact Frequencies

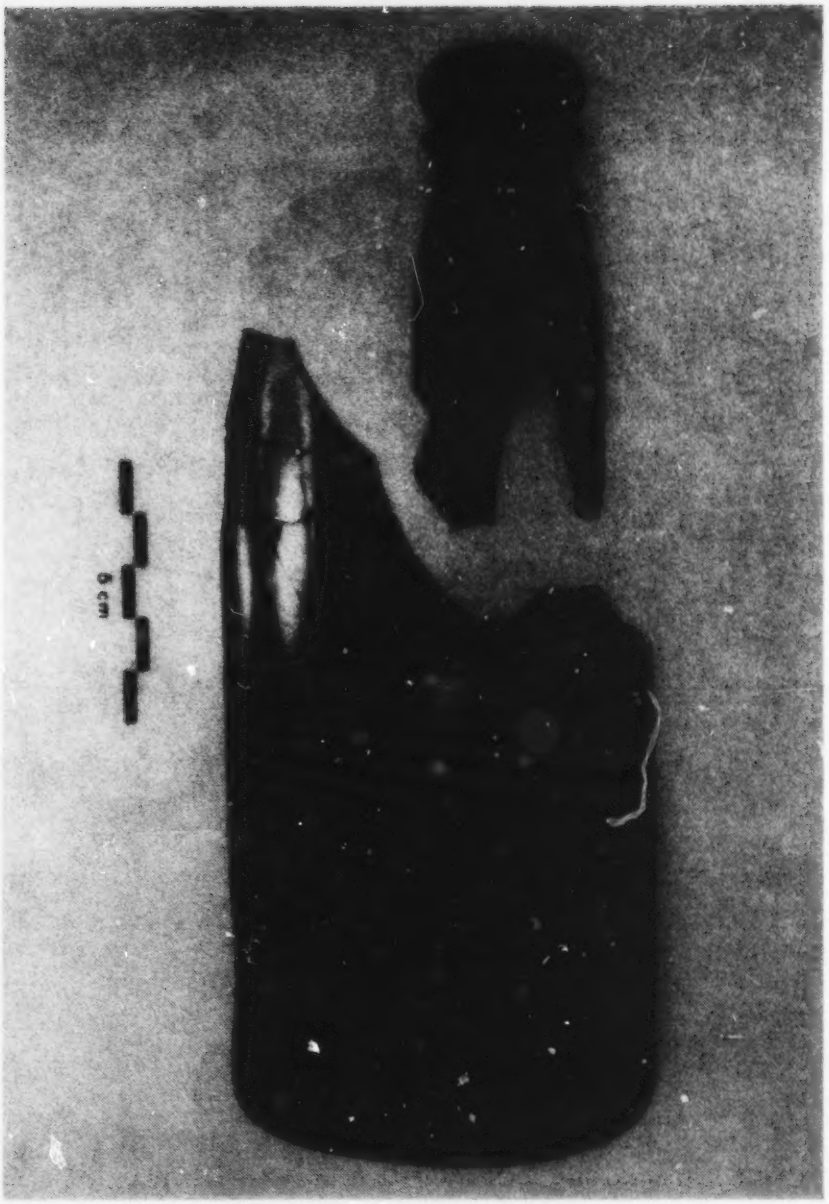



Figure 52: Wine Bottle (21K52B1-222, 21K55B1-130)

924) consists of 19 olive green, patinated fragments, many of which fit together. It is not known what type of liquid would have been kept in these bottles, but it was likely either alcohol-based or medicine.

Basal fragments consist of one amber fragment (21K54B1-1129) and one green fragment (21K52E1-2228). An olive green, patinated sherd (21K55F1-743), from a small diameter bottle, has a diameter of 28 mm and a 10 mm high knob on its interior. Another olive green, patinated bottle is represented by sherds (21K56H4-993 and 21K55F1-803) which fit together. A 30 mm kick-up is present on these sherds and they may be from the same bottle as the finish (21K56D3-924) described above. Specimen 21K51B1-657 is a small, clear fragment with an embossed "T" on it.

Two bottle neck fragments were recovered: a green sherd (21K54A1-227), 24 mm long and a clear sherd (21K56G4-3501), 38 mm long with a diameter of 17 mm.

Two bottle stoppers were found. One (21K53K1-630) is a brown "club sauce" type identical to those from the Railway Period. The other (21K55G2-2315) is a small ball stopper, perhaps part of a vial. It is clear with a slight curve, 23 mm long and has a diameter that tapers from 6 mm at the top to 1 mm (Figure 53).

There are 260 other glass fragments that, based on colour and curvature, are probably assignable to bottles. These are scattered throughout the excavation and include 17 amber/brown, 55 green and 188 olive green sherds.

#### 5.3.1.2 Other Glass

A red glass fragment (21K56G1-2368), similar to those assigned to railway lanterns, was found. Three clear sherds (21K51B1-662, 21K55G2-2320 and 21K56K5-1167) have a red coating on both sides. A small, cobalt-blue sherd (21K54C1-126) was found, as well as two light-blue transparent fragments. One of these (21K54G1-2362) is a large, curved fragment measuring 30 mm by 20 mm and 4.5 mm thick. The other (21K53D1-213) is small and flat. Specimen 21K53G1-168 is a curved "sea-green" coloured fragment.

One aqua glass tube fragment (21K56F4-1407), from a water gauge, was found. Seven thin, clear, curved fragments, probably from a lamp chimney, were retrieved. The largest measures 70 mm long, 22 mm wide and 1 mm thick. Two slightly concave sherds (21K54H1-193) have linear incised grooves on their concave surfaces. These may be from an ornamental dish or plate.

A knob (finial) (21K54D1-150), from the lid of a candy dish or a serving container, is the only specimen of its type to be found at the excavation (Figure 53). It was manufactured in a three-piece mold and is 33 mm high, with a diameter of 19 mm at the top.

There are 295 very small glass sherds that could not be identified. These consist of one yellow, one blue, one manganese, three red, 10 amber/brown, 36 turquoise, 14 olive green, 77 green and 152 clear fragments.

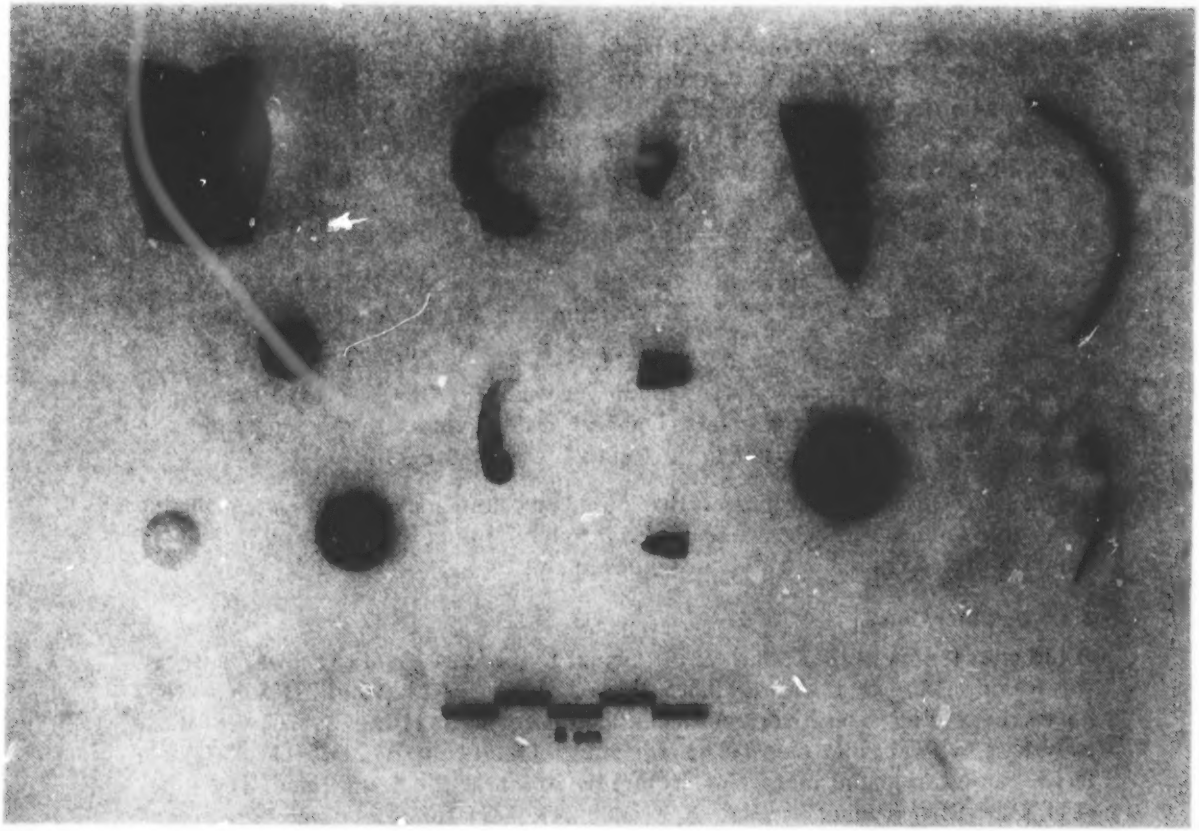


Figure 53: Assorted Artifacts (1826-1888 Period)

Column 1: Glass Finial (21K54D1-150), Mauve Glass Button (21K52F1-251), White Glass Button (21K56C4-1916), Brown Glass Button (21K51B1-694); Column 2: Ceramic Cup Handle (21K53H1-877), Glass Ball Stopper (21K55G2-2315); Column 3: Ceramic Patterned Sherds (21K53A1-241, 21K55G2-2273, 21K52J1-318); Column 4: Kaolin Pipe Bowl (21K51B1-675), American One-Cent-Piece (21K54K1-693); Column 5: Copper or Brass Awl (21K55H2-1100), Straight Pin (21K53C1-1472)

#### 5.3.1.3 Glass Buttons

The final glass artifacts to be discussed under this class are buttons (Figure 53). One (21K56C4-1916) is a white, 4-hole specimen, 11 mm in diameter. Another 4-hole button (21K52F1-251) has a diameter of 10 mm and is mauve-coloured. Specimen 21K51B1-694 is a brown, 2-hole button with a diameter of 14 mm.

### 5.3.2 Window Glass

There are 521 flat glass fragments: 77 turquoise, 120 green and 324 clear. Over half (43) of the turquoise fragments are from unit 21K51F1. Half of the green sherds were found from unit 21K54D1 south to 21K54H1. Another 18 are from unit 21K55J1. Most of the remaining green fragments are also from the western part of the excavation. The clear fragments are distributed throughout the site: 30 from 21K51C1; 28 from 21K53F1; 27 from 21K54B1; and 32 from 21K54G1.

### 5.3.3 Historic Ceramics

All of the historic ceramic sherds from this period are small; most are less than 10 mm square. Forty-five of the 49 sherds recovered are made of fine, white earthenware, and probably functioned as tableware. There are 10 rim sherds and 21 white glazed fragments which could be body sherds. These sherds are scattered throughout the site and two of the rim fragments (21K53H1-878 and 21K54H1-187) fit together. Specimen 21K53H1-877 is an almost-complete, white glazed handle, possibly from a cup (Figure 53).

Fourteen sherds have under-glaze transfer printed patterns. Four are from a rim and one is a basal sherd. There are 11 unidentifiable blue-on-white patterned sherds, one sherd (21K57B5-1043) with a reddish line on it, one sherd (21K53A1-241) with a dark purplish pattern (Figure 53) and a basal fragment (21K54H1-184) with part of a green crown (the manufacturer's mark) on it.

Specimen 21K52C1-2478 is a coarse earthenware body sherd with a dark, tan glaze. Two stoneware sherds were recovered: one (21K53B1-1009) has an improved salt glaze/slip North American with a beige exterior and a grey-brown interior; the other (21K56B3-1946) has a salt glaze on the exterior and a cream slip on the interior. These two sherds could have been part of a jug or a crock.

### 5.3.4 Smoking Pipes

Four kaolin pipe stem fragments, ranging in length from 7 mm to 20 mm, were recovered. Two undecorated pipe bowl fragments were also found. Specimen 21K54B1-1136 is part of a rim, 13 mm long and 8 mm wide at the lip. Its interior is dark-stained, most likely through use. The other bowl fragment (21K51B1-675) is 36 mm long and has a maximum width of 9 mm, tapering to a point (Figure 53).

### 5.3.5 Nails

There are 389 artifacts assignable to this class. Hand-wrought nails total 288; of these, 245 are incomplete and 43 are complete. Within the incomplete group, 142 have no heads. Table 5 shows the frequency of the various types of curated nails. Almost half

(49%) of those with identifiable heads are the flat, square common variety. Sixteen per cent are T-head, 15% are rosehead, 15% are L-head and the remaining 11 nails are represented by eight different types. Figure 54 illustrates a variety of recovered nail types. The average length of the complete nails ranges from 45 mm to 54 mm for the most frequent types.

| HEAD TYPE | QUANTITY |
|---|---|
| Common | 67 |
| T-head | 22 |
| Rosehead | 21 |
| L-head | 17 |
| Doghead | 2 |
| Clasp | 2 |
| Headless | 2 |
| Finishing | 1 |
| Round Flat | 1 |
| Flat Upset | 1 |
| Square Reinforced | 1 |
| Spike | 1 |
| Unidentifiable | 8 |
| **TOTAL** | **146** |

Table 5: Frequency of Hand-Wrought Nails

A total of 94 machine-cut nails were recovered; only 10 are complete. Sixty-one of the incomplete nails have no heads. The frequency of identifiable types is shown in Table 6. Fifty-nine per cent of these are common nails, 22% are T-head and 12.5% are L-head. A sample of these nails appears in Figure 54.

| HEAD TYPE | QUANTITY |
|---|---|
| Common | 19 |
| T-head | 7 |
| L-head | 4 |
| Flat Upset | 1 |
| Circular Wallboard | 1 |
| Unidentifiable | 1 |
| No Head Present | 61 |
| **TOTAL** | **94** |

Table 6: Frequency of Machine-Cut Nails

Five nails are too corroded to identify their method of manufacture. Three of these have no heads, one is a flat, upset-rimmed variety and one is a common nail. The distribution of all recovered nails from this period is illustrated in Figure 55. Eleven units are without nails and only six nails were found along the north part of the excavation. Units 21K54D, 21K54E, 21K54F, 21K54G, 21K54H, 21K54J and 21K54K produced 138 nails and the remainder appear to be scattered.

Nails not inventoried include 15 wire-cut, round nails and two railway spikes.

#### 5.3.6 Fasteners

Most of the fasteners were not kept. They were found just below the railway fill and are likely associated with the railway period. These consist of nine screws, two bolts, two washers and one nut. Curation of numerous specimens of machine-made items adds no more to the knowledge of the site than do curation of a sample and recording of the provenience of the culled specimens. A complete ferrous screw, 45 mm long with a flat, round, slotted head, was inventoried.

#### 5.3.7 Metal, General

There are 104 artifacts assignable to this class. Of significance is an 1875 copper U.S. one-cent-piece (21K54K1-693) (Figure 53). It provides the only absolute date of any artifact. It was found just below the railway fill and may be associated with the Immigration Shed/Shanty Town era at The Forks.

##### 5.3.7.1 Buttons

Three complete buttons were recovered. Specimen 21K54A1-229 is a brass ornamental button with part of the eye remaining at the back (Figure 56). It is 17 mm in diameter and the stamped pattern consists of small lines, within a concentric ring, near the outer edge of the button. Towards the interior, there is a design of five alternating solid stars and "tridents" without handles. A round projection in the centre measures 5 mm in diameter. A second brass button (21K52F1-252) is 16 mm in diameter and has two inset holes (Figure 56). The third button (21K54H1-194) is a very corroded, ferrous, two-piece specimen with the eye no longer present (Figure 56). The artifact has a rolled rim, is 17 mm in diameter and was probably fabric-covered.

There are four incomplete buttons. A ferrous, roughly circular button blank (21K56F4-420), 20 mm in diameter, has a small indent in the centre (Figure 56). In the final step of manufacture, a button would probably have been stamped out of it. Specimens 21K54C1-118 and 21K53G1-167 are very fragmentary buttons. The former is made of yellow metal; the latter is ferrous. A two-part copper or brass button (21K51A1-489) is undecorated and the eye, which would have been inset, is absent (Figure 56). This button may have been cloth-covered. It is difficult to assign a date to any of these buttons because, with the one exception, they are undecorated. The decorated button has a pattern which has not been identified to a manufacturer or a style.

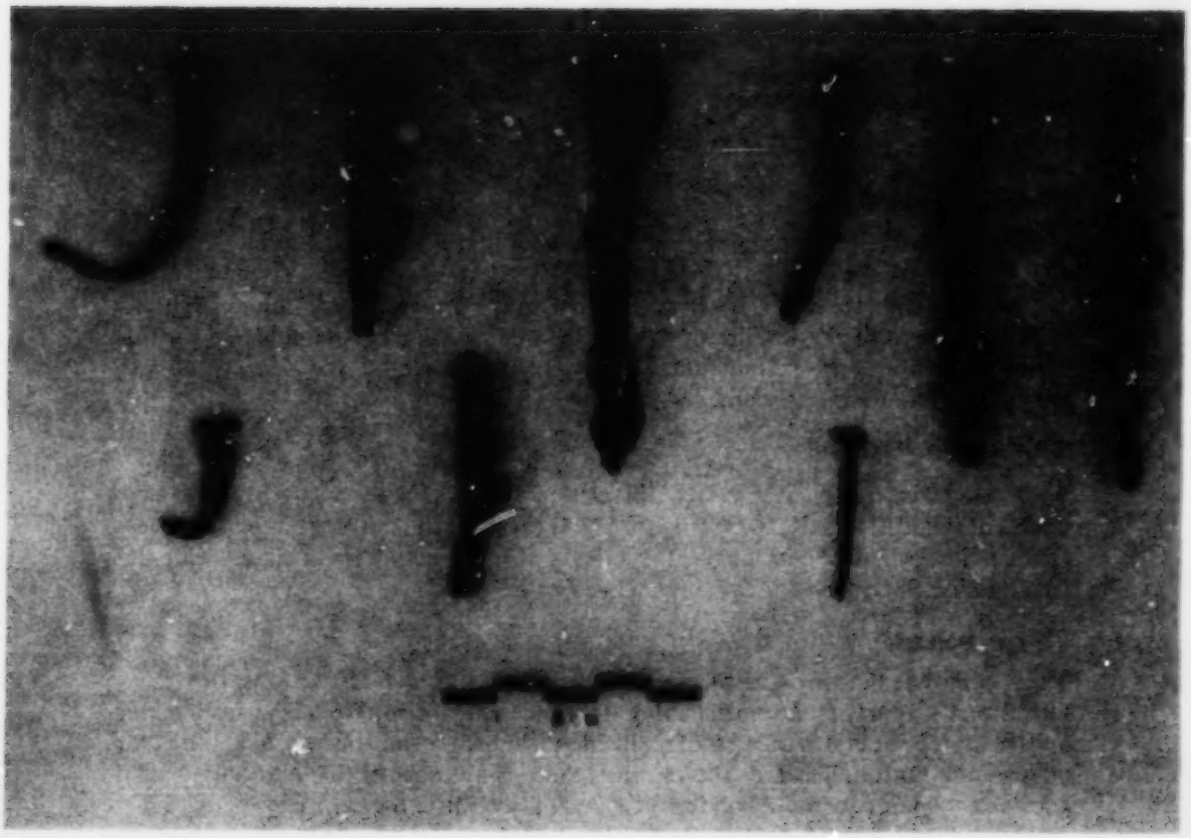


Figure 54: Types of Nails

Top (left to right): Hand-Wrought Rosehead (21K56C6-2285), Hand-Wrought Doghead (21K54G1-2369), Hand-Wrought Common (21K56J5-1803), Hand-Wrought L-head (21K54E1-3546), Machine-Cut L-head (21K54D1-3540), Machine-Cut Headless (21K54H1-3559); Bottom (left to right): Hand-Wrought T-head (21K53K1-567), Hand-Wrought Clasp Head (21K54J1-1270), Machine-Cut Common (21K51C1-3512)

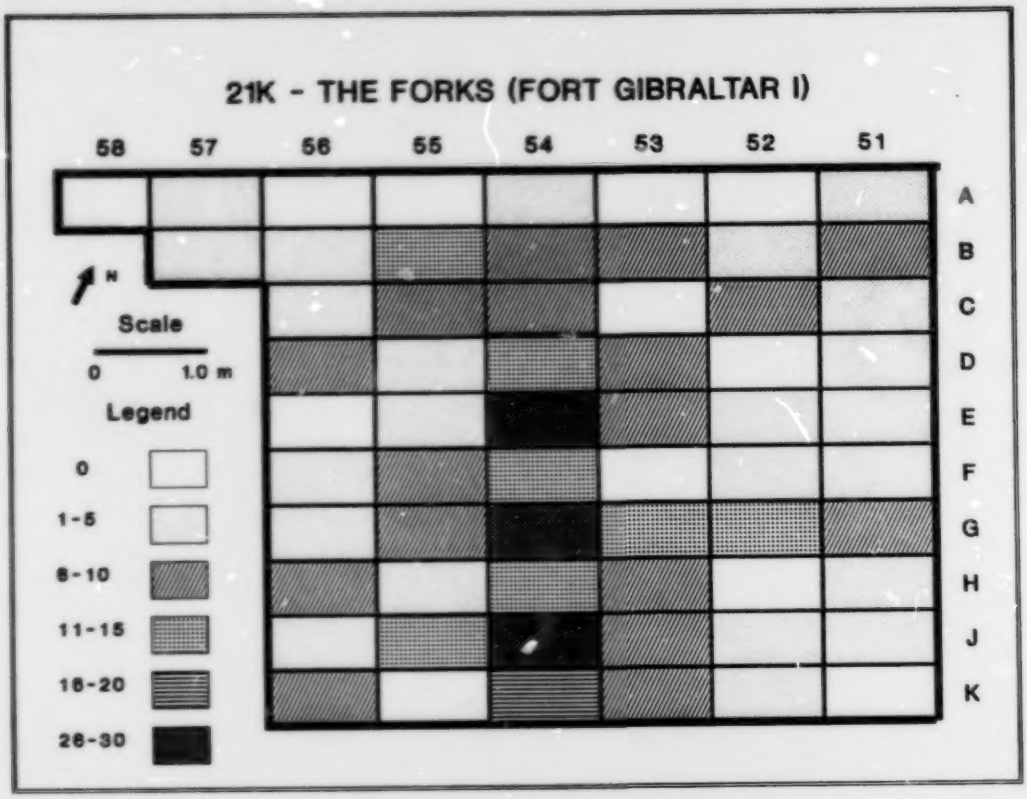



Figure 55: Distribution of Pre-Railway/Post-1826 Flood Nails

Figure 56: Metallic Artifacts

Top (left to right): Copper or Bronze Snaps (21K55C1-701), Brass Serrated Item (21K55G2-2313), Grey Metal Grommet (21K55E3-2564), Shotgun Shell Fragment (21K52D1-248); Middle (left to right): Copper or Bronze Snaps (21K55C1-701), Compass Needle (?) (21K56H4-1077), Lead Shot (21K57A4-1052); Bottom (left to right): Brass Button (21K52F1-252), Brass Ornamental Button(21K54A1-229), Brass Button (21K51A1-489), Ferrous Button Blank (21K56F4-420), Ferrous Button (21K54H1-194)

#### 5.3.7.2 Other Metallic Artifacts

Recovered specimens include a curved copper or brass awl (21K55H2-1100), 55 mm long (Figure 53). It was probably used for leather-working. Seven snaps made of copper, or bronze, were recovered. Five of these, all from unit 21K55C1, still have leather around them (Figure 56). Their use has not been determined.

An alternate edge, serrated brass item (21k55G2-2313) is 55 mm long and 7.5 mm wide, and tapers to a point 1 mm wide (Figure 56). It is not known what this artifact was used for. Another diagnostic artifact (21K56H4-1077) is a thin, yellow metal strip 40 mm long and 6 mm wide (Figure 56). It has a thin rivet through one end and the other end tapers to 3 mm. It could have been used as a needle for a compass or measuring device.

Additional yellow metal artifacts include eight wire fragments, seven strip/straps, two curved strips, a coiled strip, a band or ring (21K55F2-711), 26 mm in diameter, and a heavy, solid, broken, semi-circular object (21K54B1-1232), 28 mm in diameter. None of these specimens can be identified to original object or component of object.

Ferrous metal items comprise: two construction staples (21K55B1-1196, 1197); a flattened tube (21K56D3-914), 67 mm long; a J-shaped hook (?), 48 mm long and identical to that recovered from the Railway Period; seven wire fragments; three handle fragments (21K54A1-792), possibly from a pail or a bucket; a large iron corner brace (21K54G1-755), 15 cm long; a ferrous, straight pin (21K53C1-1472), ca. 30 mm long (Figure 53); and 44 unidentifiable fragments.

A possible grommet (21K56E3-2564), made of grey metal with a small projection on the back, is 8 mm in diameter (Figure 56). The remaining metal artifacts in this class are two, very corroded, probable tin can fragments (21K51C1-1258), a white metal strip and two lead bar fragments (21K55G2-2312). Unidentifiable corroded metal fragments that were not curated total 732.

### 5.3.10 Arms and Ammunition

Two lead shots stuck together (21K57A4-1052) were found (Figure 56). Each is 11 mm in diameter. Seven shotgun shell fragments were recovered (Figure 56). These are made of copper or brass and ferrous metal. There are no manufacturer's marks present on any of the fragments.

### 5.3.11 Beads

The strata of this period yielded 13 glass beads. Six of these beads are circular, Type IIa, "seed" beads, of which three are white and three are turquoise. Two of these beads are from unit 21K56C6 and one each is from units 21K51E1, 21K53C1, 21K55K3 and 21K56B4. Another Type IIa bead is 21K54C1-117. It is large, and measures 8 mm in diameter with a bore diameter of 2.5 mm (Figure 57). It has an iridescent colour caused by weathering or from being exposed to heat. The original colour is unknown.

There are five Type Ia cylindrical beads: one (21K56A4-1309) is white and measures 3 mm in length; one is turquoise (21K57A4-1048) and three are black (21K55E2-

Figure 57: Clothing and Adornment Artifacts

Top: Shell Buttons (21K51B1-670, 21K54K1-679); Middle (left to right): Bone Button Blank (21K51K1-623), Bone Button Fragment (21K53G1-166), Slate or Graphite Pencil Fragment (21K51B1-519), Woven Cloth Fragment (21K54K1-676), Leather Footwear Fragment (21K57B5-1655); Bottom: Glass Beads (21K54C1-117, 21K54K1-982)

1555, 21K56A4-1308, 21K56E5-1959). All are 4 mm long. Specimen 21K54K1-982 is the only example of a Type IIIa bead recovered at the site (Figure 57). It is 4 mm long and has a black core covered by a thin redwood colour layer.

### 5.3.12 Miscellaneous, Organic

Three shell buttons were recovered. Two of these (21K51B1-670, 21K54K1-670) are complete, 4-hole flat specimens (Figure 57); one is 10 mm in diameter, the other 11 mm in diameter. Specimen 21K51H1-2682 is a small fragment of another button.

Two fragments of leather (21K57B5-1655), possibly from a shoe or a boot, were located (Figure 57). Another smaller leather piece with a hole was recovered in unit 21K55C1. This piece is similar to those discussed earlier in conjunction with the snaps.

Two pieces of rope (21K55F2-712, 21K56H4-935) and eight woven-cloth fragments, seven in unit 21K54K1 (Figure 57), were inventoried.

One pincherry (*Prunus pensylvanica*) seed from 21K51C1 and two from 21K56B4 were collected (see Appendix B). Other identified seeds include three bindweed (*Convolvulus sepium*) and one tufted vetch (*Vicia cracca*). *Vicia cracca* is Eurasian in origin (Scoggin 1978; Boivin 1967) and has become naturalized in North America. Grown as a fodder plant in Europe, it may have been imported as seed for forage crops or as a contaminant in grain shipments. One seed is too charred to be identified. Only a few small pieces of charcoal were collected from some of the units and two larger unidentified wood fragments were retrieved.

### 5.3.13 Miscellaneous, Inorganic

The distribution of chinking is in the eastern and north-western area of the excavation. One hundred and ninety-three pieces, with an average weight of 0.9 gm per piece, were collected. Twenty-seven per cent of the chinking by weight came from unit 21K52D and 14% from unit 21K52J. Recovered mortar, with an average weight of 0.8 gm per piece, totals 56 pieces. Although the mortar was found in areas similar to the chinking, it was more common in the central part of the site than in the north-west. Possible evidence of a structure (or structures) is further supported by the presence of six brick fragments. Five of these (21K51B1-660, 21K52J1-320, 21K55C1-888) are brown and one (21K56F4-422) is a reddish fragment. Although there is not a direct association between these bricks and the mortar, the evidence suggests that structures were present during the later part of this period.

Eleven tar paper fragments from unit 21K54K1 were found. They are the same as those present from the Railway Period. A slate or graphite pencil fragment (Figure 57) and a possible button fragment (21K53H1-884) made of bakelite were also recovered.

### 5.3.14 Lithics

One flake (21K54J1-1271), made of a fine black chert or chalcedony, was found.

### 5.3.15 Worked Bone

Two bone button fragments were found (Figure 57). Specimen 21K51K1-623 is half of a single-hole specimen, probably a blank, 11 mm in diameter. Another button half (21K53G1-166), with 2 of 4 holes remaining, has a diameter of 17 mm.

### 5.3.16 Fauna

The recovered faunal remains total 2,661 (Figure 58) (Table 7). Although many of the specimens were too fragmented to identify to class, mammal remains number 1,004. Identified species include cow, horse, beaver and rabbit. There were also one 'pig/sheep/goat,' six 'cow/bison' and seven 'cow/bison/moose/elk' specimens curated. Butchering marks are present on many of the bones (Figure 59). Five exhibit saw-marks, two have chop marks, one has cut marks and 14 are spiral fractured (generally caused by butchering), including a 'cow/bison' scapula fragment.

Copper staining occurs on two teeth, one from a 'cow/bison.' The cow scapula is sawn and copper stained (Figure 59). This copper-staining is caused by the remains being close to a copper artifact in the soil. A few possible bone tools were found (Figure 60): 21K51B1-659 is a heavily polished long bone shaft fragment with small chips removed from one end; 21K51B1-665, another polished long bone shaft fragment, has striations over a portion of its outer surface. A worked long bone (21K52K1-458), with two flake scars at one end, was excavated.

Fish remains number 357 including 18 sturgeon, two 'catfish/bullhead,' one 'mooneye/goldeye,' one 'walleye/sauger' and one sucker.

A cowrie shell was the most unique faunal remain recovered during the 1989 excavation (Figure 60). These shells are native to the Gulf of Mexico and the presence of a single specimen at Fort Gibraltar I could indicate it was a trade item.

The faunal remains indicate that a variety of animal resources were used. The domestic cow and 'pig/sheep/goat' remains are possibly associated with the Experimental Farm. Large mammals would have provided the bulk of the meat.

### 5.3.17 Summary

The high number of artifacts, especially glass and nails, indicates that a great deal of human activity occurred during this time period. The presence of historic ceramics, buttons, an awl and a straight pin indicate, perhaps, that domestic activities were being performed.

The presence of chinking, mortar, bricks and nails points to the construction of structures. This would be expected during the Experimental Farm and Immigration Shed phases of this period.

| IDENTIFICATION | QUANTITY | |
|---|---|---|
| **MAMMAL** | | **1004** |
| Large Mammal | 231 | |
| Medium/Large Mammal | 385 | |
| Medium Mammal | 8 | |
| Small Mammal | 5 | |
| Undifferentiated Mammal | 315 | |
| 'Cow/Bison/Moose/Elk' | 7 | |
| 'Pig/Sheep/Goat' | 1 | |
| Undifferentiated Artiodactyla | 30 | |
| 'Cow/Bison' | 6 | |
| Cow | 1 | |
| Horse | 1 | |
| Carnivore | 2 | |
| 'Wolf/Dog/Coyote/Fox' | 5 | |
| Small Rodent | 4 | |
| Rabbit | 1 | |
| Beaver | 2 | |
| **BIRD** | | **46** |
| Large Bird | 4 | |
| Medium/Large Bird | 5 | |
| Small/Medium Bird | 1 | |
| Small Bird | 1 | |
| Undifferentiated Bird | 30 | |
| 'Duck/Goose' | 4 | |
| Hawk | 1 | |
| **FISH** | | **357** |
| Undetermined Species | 334 | |
| Sturgeon | 18 | |
| 'Catfish/Bullhead' | 2 | |
| 'Walleye/Sauger' | 1 | |
| 'Mooneye/Goldeye' | 1 | |
| Sucker | 1 | |
| **AMPHIBIAN** | | **18** |
| 'Frog/Toad' | 18 | |
| **SHELLFISH** | | **147** |
| 'Fingernail/Pea' Clam | 91 | |
| Freshwater Clam | 43 | |
| Pig-Toe | 6 | |
| Cowrie | 1 | |
| Undifferentiated Shellfish | 7 | |
| **GASTROPOD** | | **4** |
| **UNDETERMINED CLASS** | | **1085** |
| **TOTAL FOOD REMAINS** | | **2661** |

Table 7: Identification of Pre-Railway/Post-1826 Flood Faunal Remains

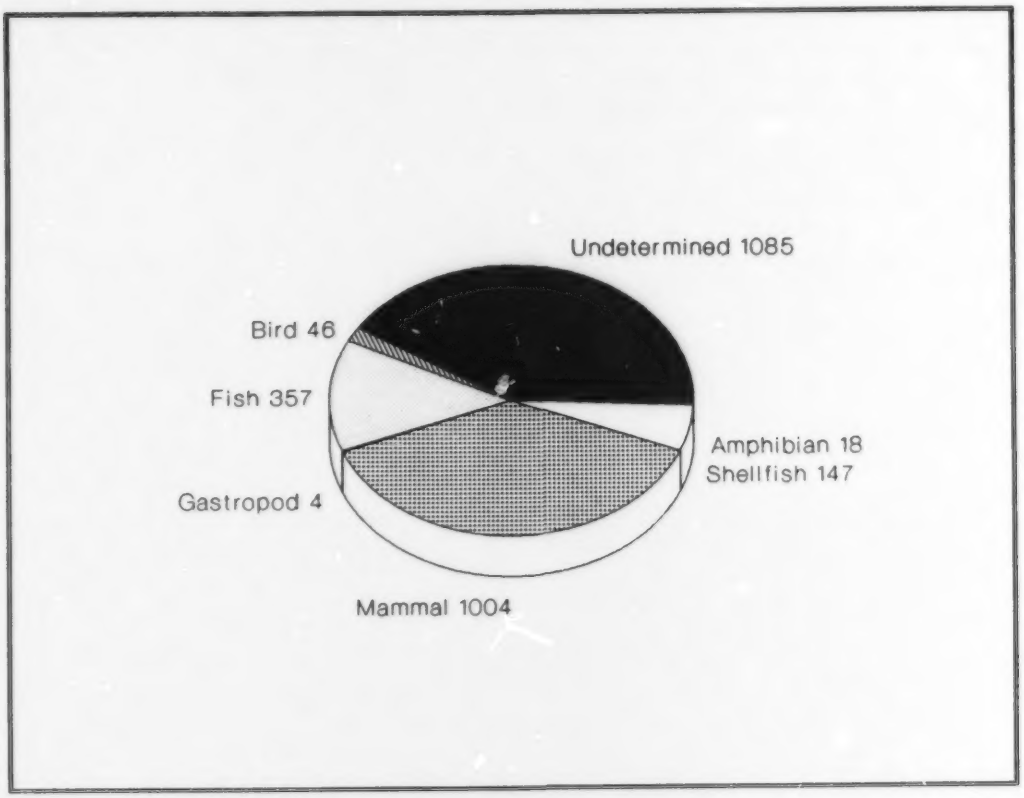



**Figure 58: Pre-Railway/Post-1826 Flood Faunal Frequencies**

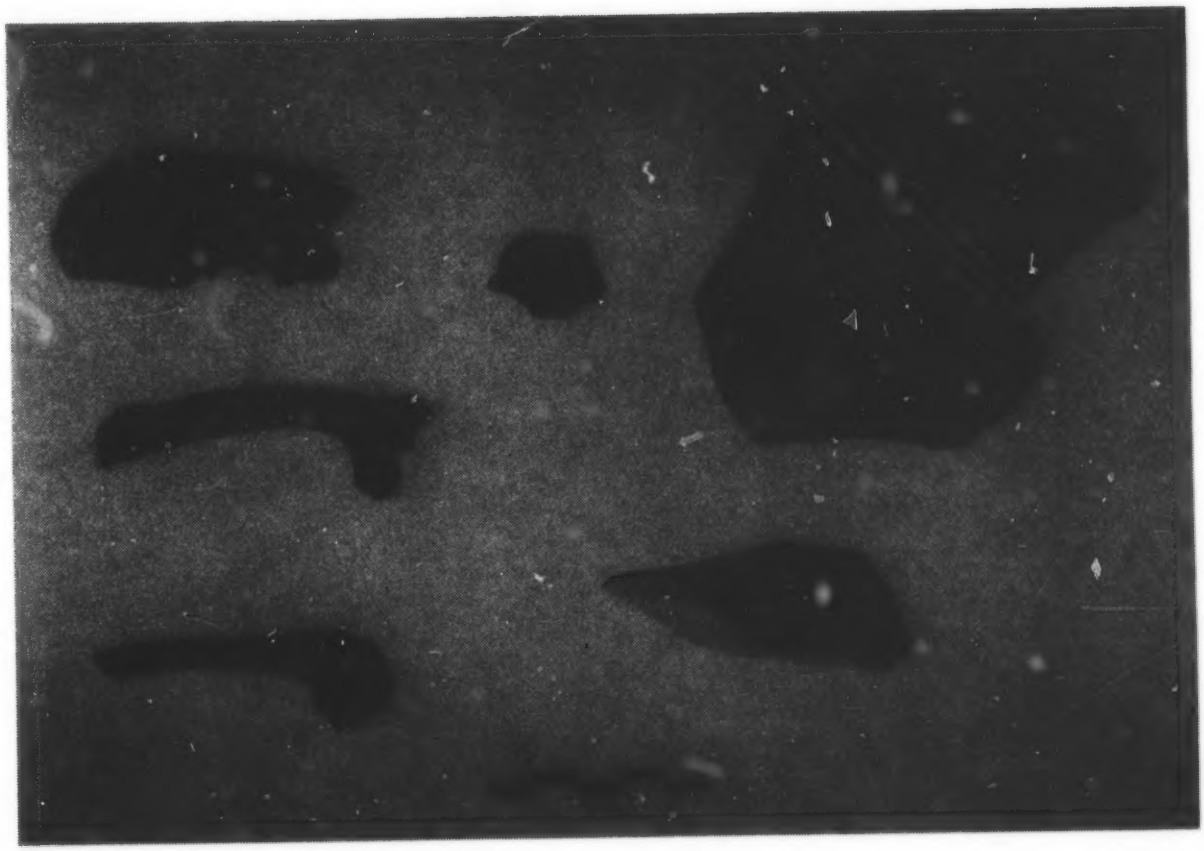


Figure 59: Butchered Bone

Left (top to bottom): Sawn Mammal Vertebra (21K56F5-1177), Cut Mammal Rib (21K54E1-991), Cut 'Goose/Duck' Humerus (21K54B1-1455); Middle: Copper Stained 'Cow/Bison' Tooth (21K55F1-812); Right (top to bottom): Sawn Cow Scapula (21K55C1-2323), Flaked Long Bone Shaft (21K55C1-767)

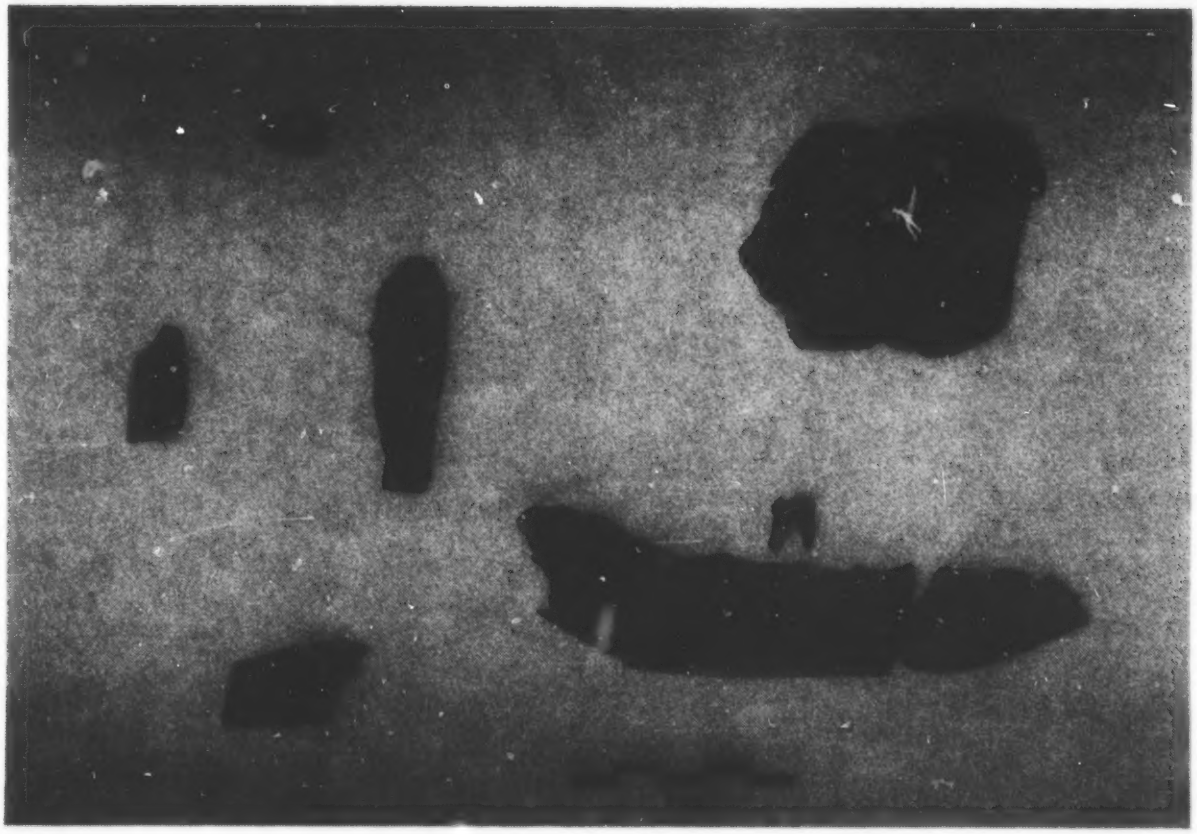


Figure 60: Selected Faunal Artifacts

Left (top to bottom): Cowrie Shell (21K53G1-3048), Mammal Bone Tools (21K152K1-458, 21K51B1-665, 21K51B1-659); Right (top to bottom): Artiodactyla Centroquatral (21K52C1-2486), Canidae Mandible and Tooth (21K52J1-331)

## 5.4 1826 Flood

Excluding the 7,324 faunal remains, there are a total of 558 artifacts (Table 8) recovered from the 1826 Flood Level (Figure 61). The relative frequency of the analytic categories is displayed in Figure 62.

| ARTIFACT CLASS | QUANTITY |
|---|---|
| Window Pane | 26 |
| Glass | 22 |
| Metal, General | 17 |
| Nails | 16 |
| Historic Ceramics | 2 |
| Smoking Pipes | 1 |
| Miscellaneous, Organic | 22 |
| Miscellaneous, Inorganic | 389 |
| Arms and Ammunition | 2 |
| Beads | 28 |
| Lithics | 17 |
| Native Ceramics | 6 |
| TOTAL | 558 |

Table 8: 1826 Flood Artifact Quantities

### 5.4.1 Glass

There are 22 glass artifacts. These consist of six dark olive green bottle fragments, two melted fragments, 13 undiagnostic fragments, and a clear sherd (21K57B6-2008), possibly a lamp chimney.

### 5.4.2 Window Glass

Twenty-six flat glass fragments, probably window pane, were found. Thirteen are clear sherds, 12 are green and one is aqua. Most were located in the north-west part of the excavation.

### 5.4.3 Historic Ceramics

Two small earthenware sherds were found. One (21K55J2-1103) has an unidentifiable under-glaze blue transfer print pattern; the other (21K55A3-834) has interior and exterior white glaze.

### 5.4.4 Smoking Pipes

One kaolin pipe bowl fragment (21K56B5-2430) was found (Figure 63).

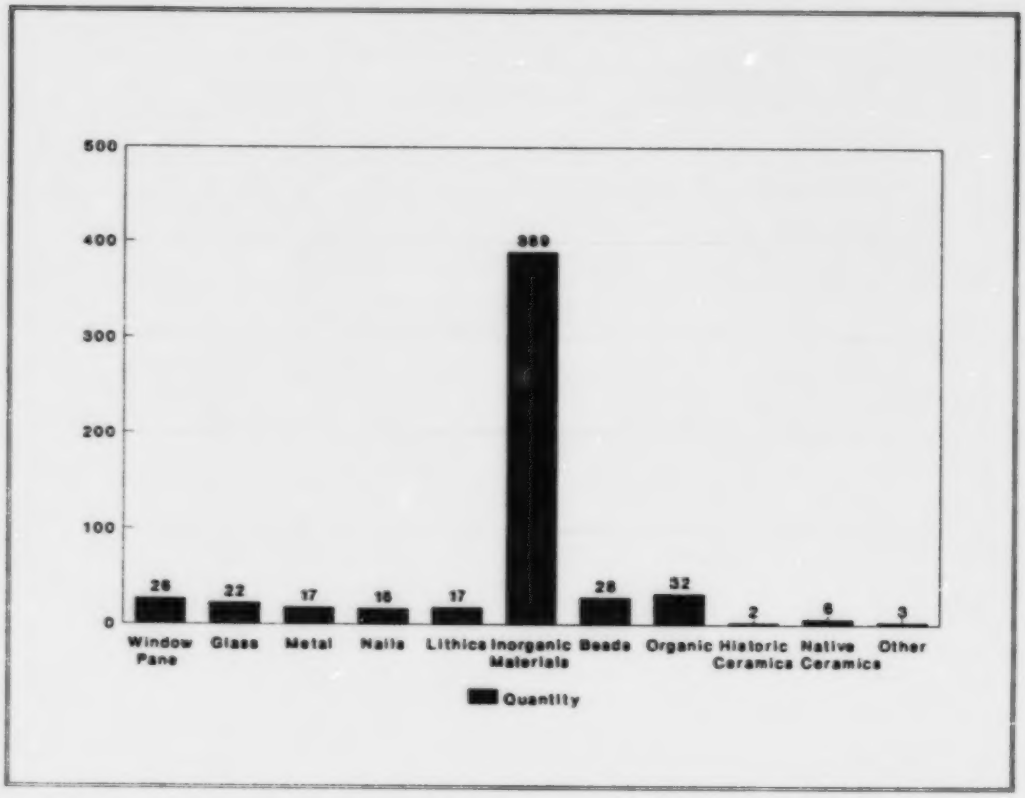



Figure 61: 1826 Flood Artifact Quantities

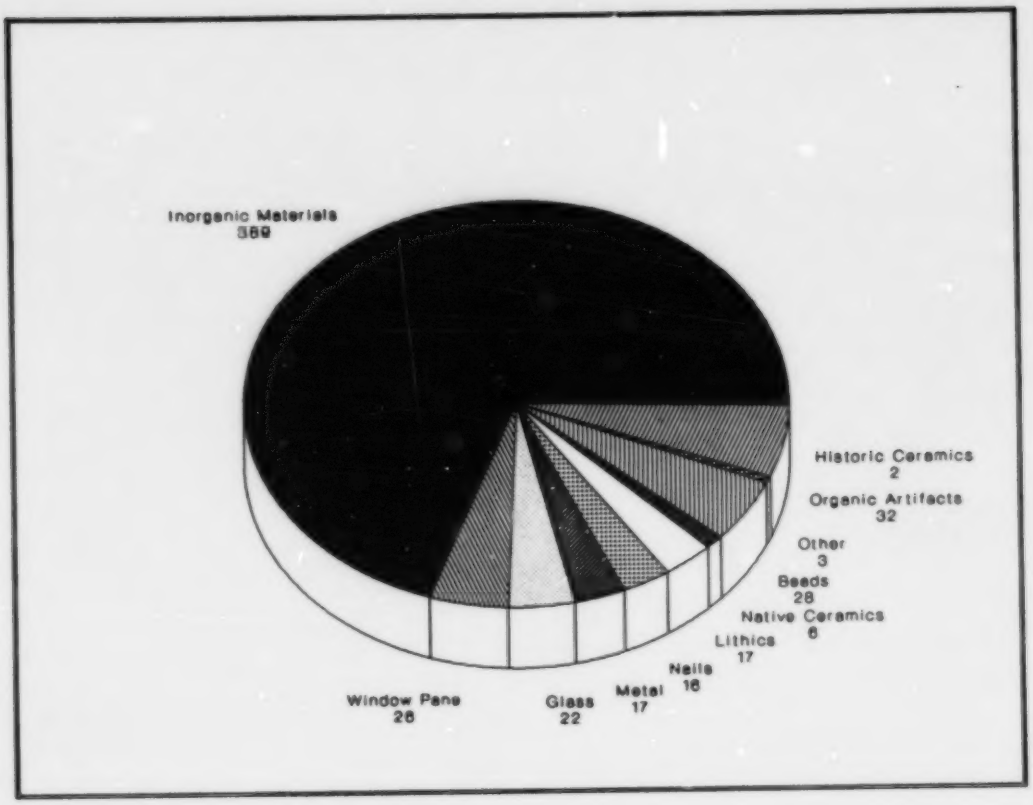



Figure 62: 1826 Flood Artifact Frequencies

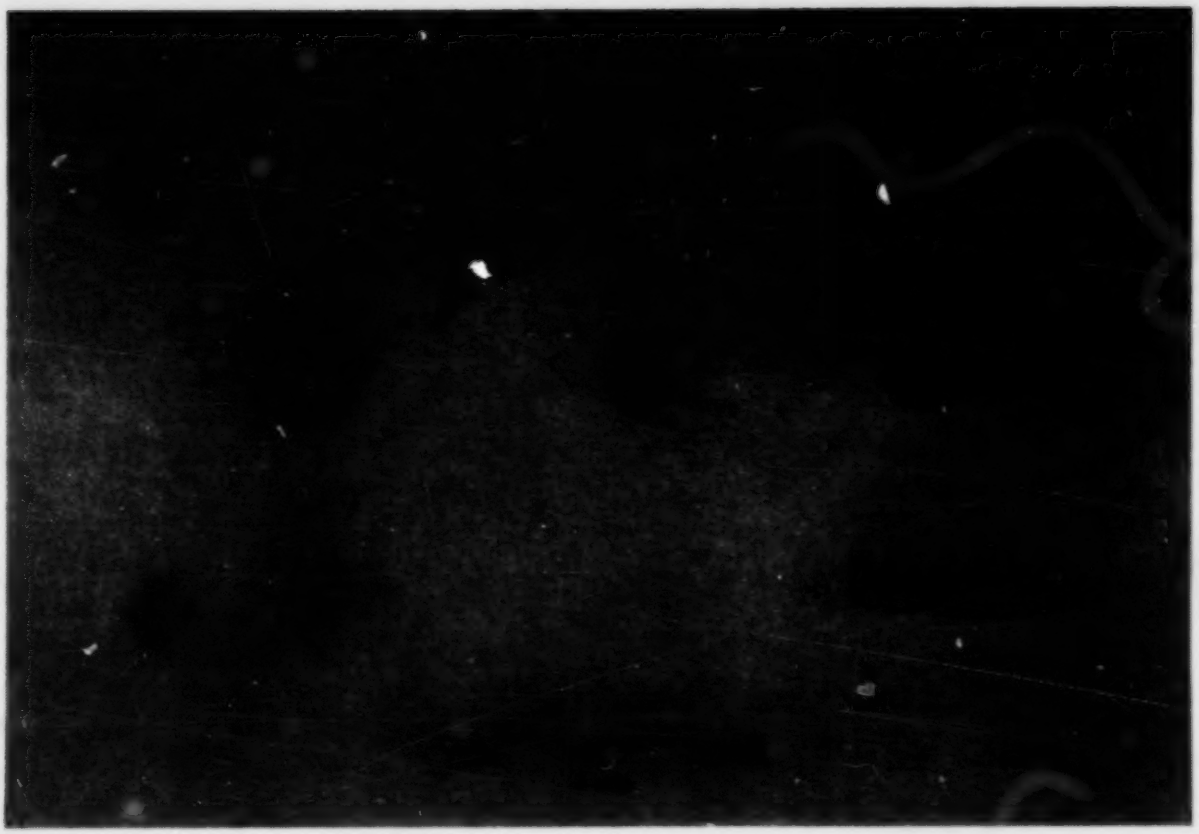


Figure 63: Assorted Artifacts (1826 and earlier)

Top (left to right): Pipe Bowl Fragment (21K56B5-2430), Ferrous Straight Pin (21K53K2-425), Bottle Finish (21K52K4-1058); Middle (left to right): Metal Button (21K55A3-827), Steatite Platform Pipe Fragment (21K55B3-2858); Bottom (left to right): Pre-Contact Ceramic Body Sherdlet (21K56E6-2591), Blackduck Ceramic Rim Sherdlet (21K56D4-2716), Pipestem Fragment (21K57B7-2862)

### 5.4.5 Nails

There are 15 nails and one tack. Six of the nails are hand-wrought: three are incomplete with missing heads; one (21K55A3-3566) is an incomplete rosehead; one (21K55A3-3567) is an incomplete T-head; and one (21K57B6-1841) is a complete T-head, 63 mm in length.

There are eight machine-cut nails. Four are incomplete with missing heads. One (21K57B6-1840) is an incomplete common nail. Three (21K53H2-1036) are complete common nails; two are 34 mm long, the other is 75 mm in length. One nail is incomplete and the method of manufacture cannot be determined. The tack (21K56A5-1599) is complete, measuring 15 mm long.

### 5.4.6 Metal, General

A two-part button (21K55A3-827), 19 mm in diameter, with a copper or brass covering over a ferrous body, was found (Figure 63). A complete, ferrous, straight pin (21K53K2-425), 27 mm long, was excavated (Figure 63). Other ferrous artifacts include a construction staple (21K55A3-827), a pipe (21K55A3-816) threaded at both ends, 72 mm long with a diameter of 31 mm, and 13 undiagnostic ferrous fragments.

### 5.4.7 Arms and Ammunition

Two lead shots were recovered. One (21K53E2-3019) is 3 mm in diameter; the other (21K56D4-2720) has a diameter of 5 mm.

### 5.4.8 Beads

A total of 28 glass beads were recovered. Sixteen are of the Type IIa "seed" variety. One (21K55G3-1975) is ruby, one (21K56E6-2644) is sky blue, two (21K56E6-2030; 21K56E6-2592) are bright navy, three (21K56H5-2407; 21K56J6-1896) are turquoise and nine are white. The white beads are from units 21K53K2, 21K54G2, 21K55A3, 21K56A5, 21K56B5, 21K56C7, 21K56E6 and 21K57A5.

The other 12 beads are all Type Ia cylindrical and come from the north-western portion of the excavation. Eight are black, ranging in length from 3.5 mm to 5 mm. Individual specimens were located in units 21K54A3, 21K55A3, 21K56E6, 21K56J6, and 21K57A5. Three are from 21K56H5. One bead (21K54E2-1550) is a rose wine colour and three are white, coming from units 21K55C2, 21K55G3, and 21K57A5.

### 5.4.9 Miscellaneous, Organic

Thirteen small fragments of burnt wood/charcoal were recovered. The species have not as yet been identified. Nineteen seeds, including 14 pincherry (*Prunus pensylvanica*), one *Prunus* sp., two charred hazelnut (*Corylus americana*) shell fragments, one bindweed (*Convolvulus sepium*) seed and one unidentifiable fragment were found (see Appendix B). All of these seeds, with the exception of five pincherry, are from the western edge of the excavation.

### 5.4.10 Native Ceramics

A Blackduck rim sherd (21K56D4-2716), 12 mm long with a lip thickness of 8 mm, was retrieved. The top and side of the sherd have an oblique cord-wrapped object impressed decoration (Figure 63). A thin, small body sherd, with a finely brushed exterior, was recovered (Figure 63). Four other body sherds were found in unit 21K55E2. One is textile-impressed and the others have no evidence of a surface finish.

### 5.4.11 Lithics

Seventeen small, chert thinning flakes were recovered. Six are from the southern portion of the excavation, six are from the west-central part and five were found in the north-west area.

### 5.4.12 Miscellaneous, Inorganic

Two very small pieces of ochre (21K55H4-1624; 21K56C7-2776) were found. Ninety-three mortar pieces were recovered; almost half (49) are from unit 21K51E4, seven fragments are from 21K51G3 and 12 were found in 21K51H3. The remaining pieces were scattered throughout the western half of the excavation.

Chinking pieces totalled 294, with an average weight of 0.6 gm per piece. The largest piece (21K52D2-1557) weighs 36.4 gm. The specimens were distributed in a diagonal line along the western edge of the excavation, approximately two units wide, running from the south-east corner to the north-west corner. The mortar and chinking were found in association with each other in units 21K51E4, 21K51G3 and 21K51H3, perhaps indicating the presence of a structure. An alternate explanation is that flood action, such as back eddies, concentrated these artifacts.

### 5.4.13 Fauna

Table 9 lists the 7,324 recovered faunal remains. Of this total, 65% (4,768) could not be assigned to a class (Figure 64). There were 568 small clam shells embedded in the flood silts. Flood action probably resulted in the concentration of the 1,242 fish remains. Identified species include sturgeon, walleye, sucker, 'catfish/bullhead' and two 'mooneye/goldeye.' There are 601 mammal remains. One rib and one vertebra have cut marks, indicating that some butchering occurred. The flood may have washed these bones up from lower levels or transported them from nearby localities. Burnt and calcined mammal remains total 165 and were probably the result of being cooked for food. Among these are rabbit, beaver and muskrat. Bird remains include 18 'goose/duck' bones, 13 of which are sternum fragments.

### 5.4.14 Culled Artifacts

Culled materials consisted of 62 unidentifiable metal fragments.

### 5.4.15 Summary

The majority of artifacts from the 1826 Flood Period occur along the western part of the excavation, particularly the north-west corner. Artifacts were not found in 12 of the 30 units in the eastern half of the excavation.

| IDENTIFICATION | QUANTITY | |
|---|---|---|
| **MAMMAL** | | **601** |
| Large Mammal | 16 | |
| Medium/Large Mammal | 206 | |
| Medium Mammal | 19 | |
| Small/Medium Mammal | 5 | |
| Small Mammal | 26 | |
| Undifferentiated Mammal | 295 | |
| Undifferentiated Artiodactyla | 1 | |
| 'Cow/Bison' | 2 | |
| 'Wolf/Dog/Coyote/Fox' | 7 | |
| Rabbit | 10 | |
| Muskrat | 5 | |
| Beaver | 5 | |
| Small Rodent | 5 | |
| **BIRD** | | **60** |
| Large Bird | 5 | |
| Medium/Large Bird | 2 | |
| Medium Bird | 8 | |
| Small Bird | 5 | |
| Undifferentiated Bird | 21 | |
| 'Duck/Goose' | 18 | |
| Crow | 1 | |
| **FISH** | | **1242** |
| Undetermined Species | 1187 | |
| Sturgeon | 33 | |
| 'Catfish/Bullhead' | 10 | |
| Sucker | 6 | |
| 'Mooneye/Goldeye' | 3 | |
| 'Walleye/Sauger' | 2 | |
| Freshwater Drum | 1 | |
| **REPTILE** | | **2** |
| Turtle | 2 | |
| **AMPHIBIAN** | | **29** |
| 'Frog/Toad' | 29 | |
| **SHELLFISH** | | **579** |
| 'Fingernail/Pea' Clam | 568 | |
| Freshwater Clam | 10 | |
| Undetermined Species | 1 | |
| **GASTROPOD** | | **43** |
| **UNDETERMINED CLASS** | | **4768** |
| **TOTAL FOOD REMAINS** | | **7324** |

Table 9: Identification of 1826 Flood Faunal Remains

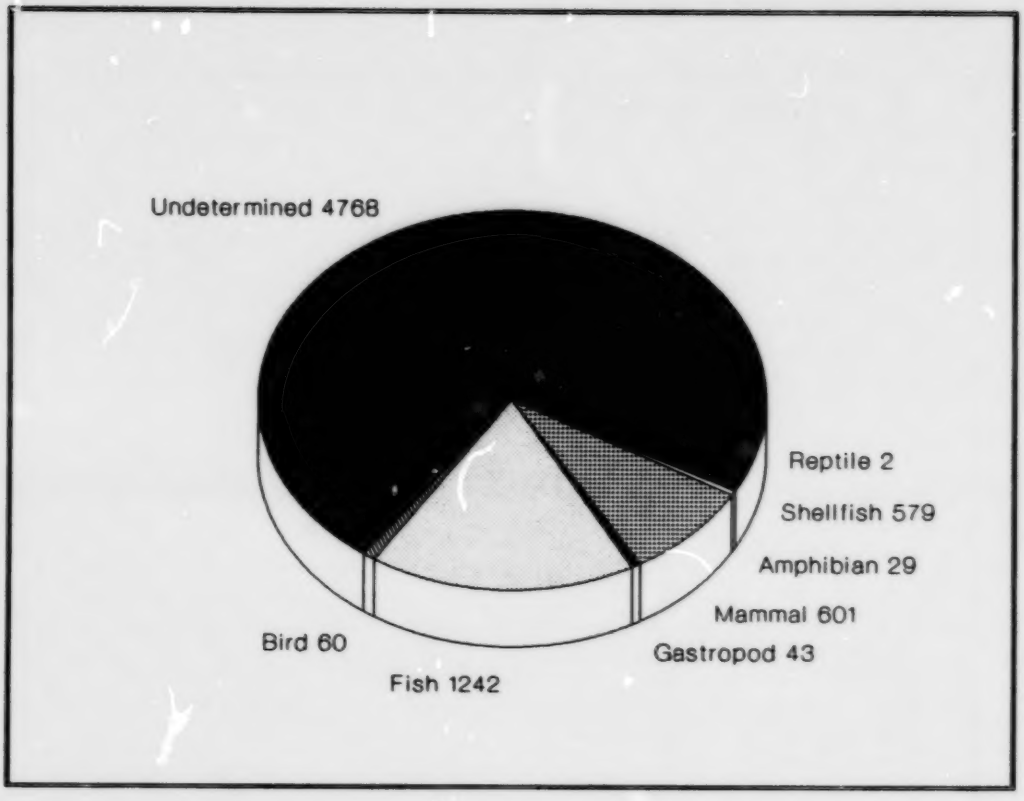



**Figure 64: 1826 Flood Faunal Frequencies**

## 5.5 Fur Trade

The Fur Trade Period is represented by artifacts recovered predominately from the north-west part of the excavation and from a hearth feature to the extreme south-centre. This period is characterized by the presence of many trade beads (418), lead shot (327) and chinking (2668).

Excluding the chinking and 4,454 faunal remains, a total of 951 artifacts were recovered from this period (Figure 65). The relative frequency of the analytic categories is shown in Figure 66.

### 5.5.1 Glass

There are 47 specimens assignable to this class. Patinated, aqua bottle sherds were found in units 21K52K4 and 21K53K4 (Feature G). The finish, a one-part straight variety, consisting of 5 sherds glued together, has a diameter of 27 mm. The neck is 40 mm long and a portion of a squared shoulder exists. There are 14 other sherds assignable to this bottle. One of these, 21K53K4-1081 fits onto the finish. The method of manufacture and the function of the bottle are unknown.

Possible bottle sherds include two curved olive fragments (21K52B3-2128,21K52D3-2901) and three green fragments (21K54D3-3396).

There are 25 small, undiagnostic fragments: 18 are from unit 21K56D5 and four are from the southern part of the excavation. There are nine green, eight clear, five olive, two aqua and one amber sherd.

Other glass sherds include a thin, clear item (21K53J6-2803), possibly from a lamp chimney, a clear sherd with an embossed pattern on its concave surface (21K54D3-3395) and a very thin, clear flake-like fragment (21K52G3-2663).

### 5.5.2 Window Glass

There were 35 sherds of flat glass recovered, 23 clear and 12 green. Concentrations were observed in unit 21K57B7 (16 sherds) and unit 21K54D3 (7 sherds). The remaining sherds were scattered throughout the excavation. Most are small.

### 5.5.3 Historic Ceramics

Five historic earthenware ceramic sherds were curated. One (21K53J4-736) has an unidentifiable under-glaze blue transfer print pattern on its slightly concave (interior) surface. The sherd is approximately 8 mm square. The other sherds are white glazed. The largest (21k57B7-2160) is 24 mm x 16 mm. All of the sherds are parts of tableware vessels.

### 5.5.4 Smoking Pipes

Two kaolin pipe fragments were recovered. One (21K57B7-2862) is a stem 34 mm long, with an outer diameter of 8 mm and a bore diameter of 2 mm (Figure 63). Specimen 21K56J7-2340 is a small, undecorated bowl fragment.

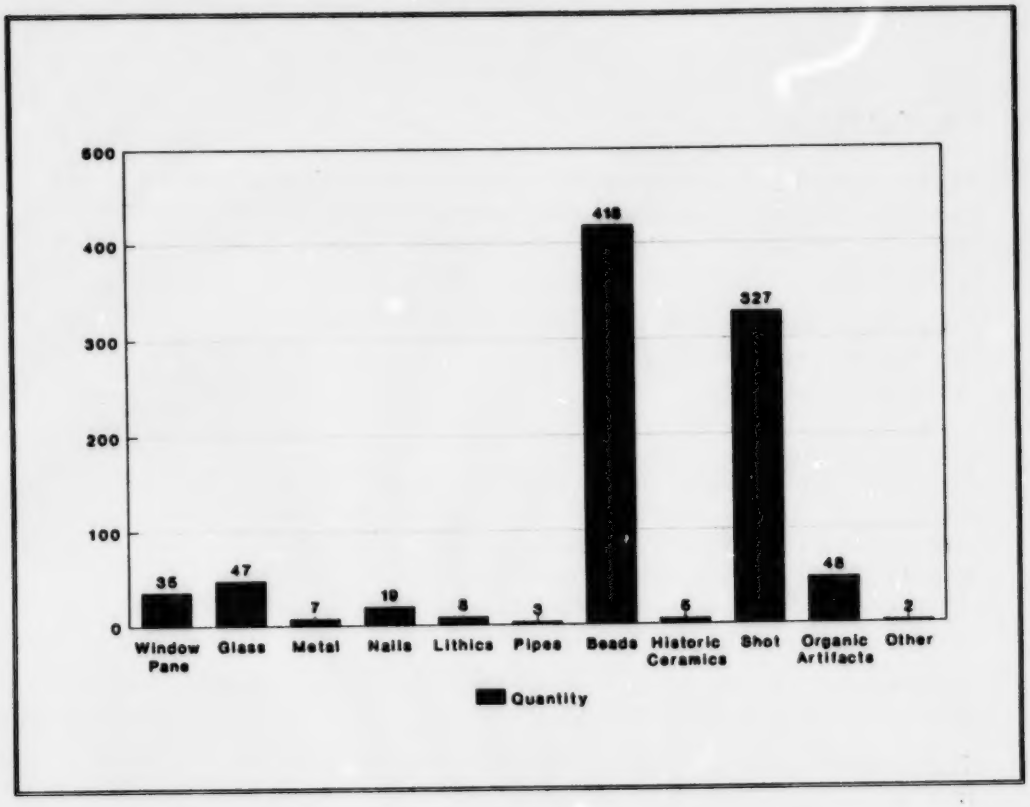



Figure 65: Fur Trade Artifact Quantities

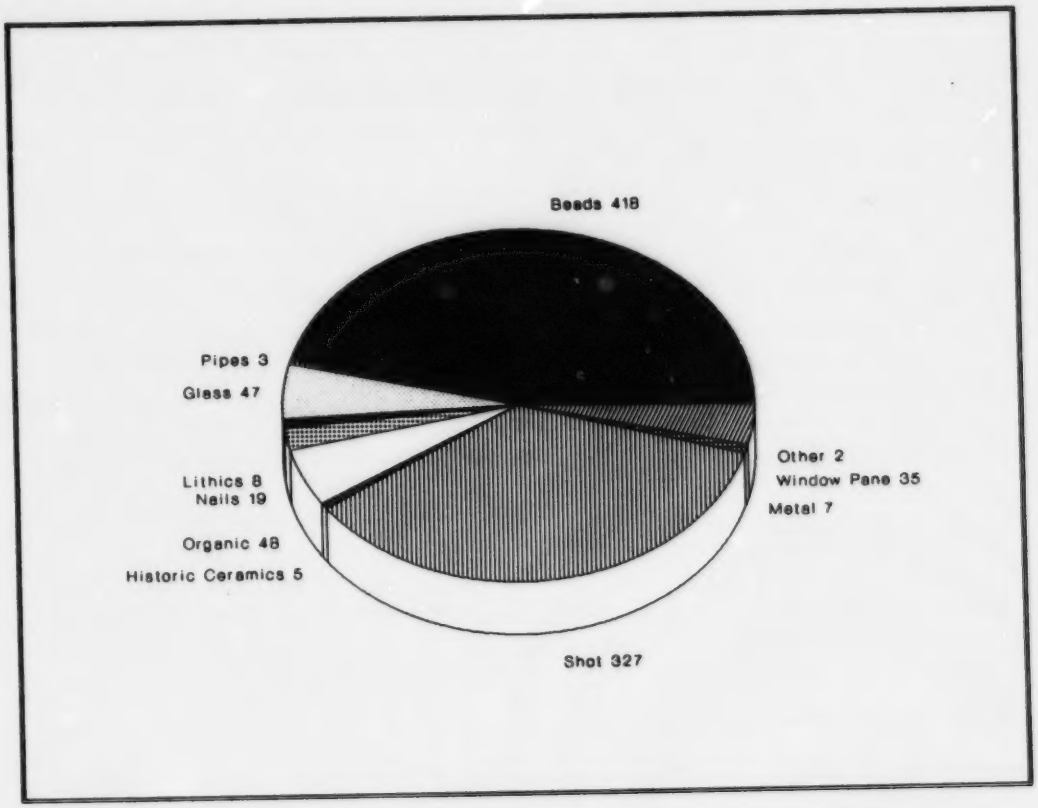



**Figure 66: Fur Trade Artifact Frequencies**

A third pipe fragment (21K55B3-2858) is identified tentatively as part of a steatite platform pipe (Figure 63). It is 22 mm long and 7 mm wide, and has three parallel, incised lines running along its length.

### 5.5.5 Nails

Nineteen nails were recovered. Two are complete machine-cut specimens of the common variety, measuring 64 mm and 75 mm in length.

The remaining nails are hand-wrought; three are complete common specimens from unit 21K57B7, two are 30 mm long and one is 40 mm in length. A complete bevel boat nail (21K54G9-2885) is 30 mm long (Figure 67). The other hand-wrought nails are incomplete: 21K55J3-3140 has a T-head and 21K54E8-2995 is the doghead variety. Eight nails are missing their heads and three have heads too corroded to be identified. These nails were scattered throughout the site.

### 5.5.6 Fasteners

The only artifact falling into this class is a machine-made iron construction staple (21K57B7-2872), 40 mm long. Fasteners were common from the upper levels of the excavation. Its presence, and that of machine-cut nails, within a Fur Trade level could be due to soil disturbance or it may have fallen out of the unit wall.

### 5.5.7 Metal, General

Few metal artifacts were recovered from the Fur Trade Period. The most distinctive items are two tinkling cones (Figure 67). One, made of brass (21K534K4-492), is 4 mm long, has a diameter of 4 mm and tapers to 1.5 mm. The other, made of copper (21K54A7-2215), is 32 mm long, has a diameter of 6 mm and tapers to 1.5 mm. Tinkling cones were used as decorative items, fastened to fringes or jackets and leggings.

Specimen 21K55J3-3142 is a large, flat copper fragment 53 mm by 54 mm. A piece of copper wire also came from this unit. Ferrous metal artifacts consist of a heavily corroded, flat fragment (21K54D3-3408), 94 mm long by 42 mm wide; a flat item (21K54J3-288), 23 mm by 20 mm; and a strip (21K57A7-1748), 24 mm long and 3 mm wide. Fifty-four small, unidentifiable fragments were not inventoried.

### 5.5.8 Arms and Ammunition

Lead shot totals 327. All but one range in size from 2 mm to 5 mm in diameter (Figure 67). Specimen 21K54H3-471 is a large, flattened shot, approximately 14 mm in diameter (Figure 67). Unit 21K54J4 produced 175 shots, unit 21K54K7 had 101 and unit 21K54K6 contained 30. Of the remaining shot, 13 were recovered from the southern part of the excavation and eight from the north-west part.

### 5.5.9 Beads

As anticipated, the majority of beads recovered from the excavation were from the Fur Trade Period. This includes 414 glass "seed" beads and 4 cylindrical shell beads commonly known as "wampum" (Figure 68). Table 10 provides a frequency count by colour. A clear, translucent bead, the only one found, came from unit 21K54A4. A

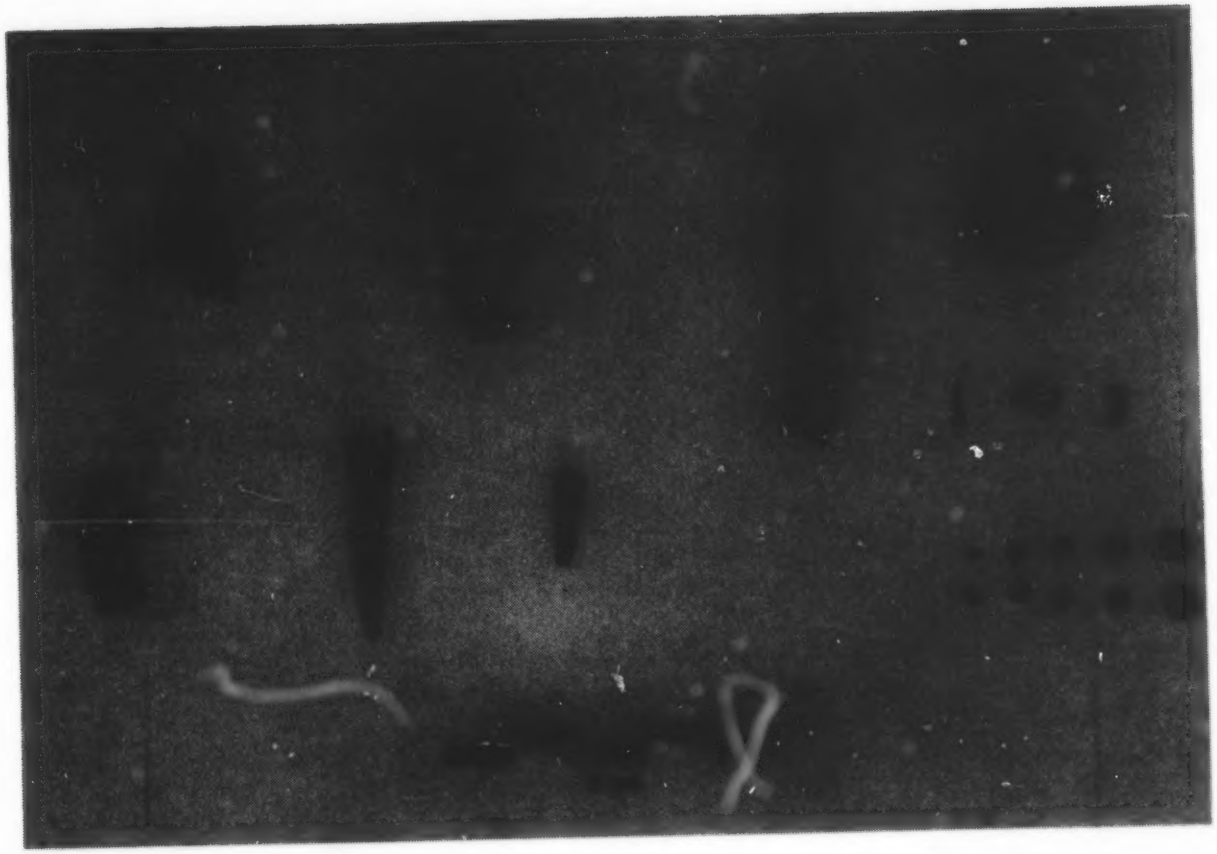


Figure 67: Fur Trade Artifacts

Top (left to right): Chert Scraper (21K51K7-2932), Bevel Boat Nail (21K54G9-2885), Doghead Nail (21K54E8-2995), Lead Shot (21K54H3-471); Bottom (left to right): Chalcedony Utilized Flake (21K53J5-377), Copper Tinkling Cones (21K54A7-2215, 21K53K4-492), Various Sizes of Lead Shot (21K54J9-2216)

broken green bead was located in unit 21K54K7. Six turquoise beads are present, three from unit 21K54K, while the remaining three are also from the southern part of the excavation. Four ultramarine beads were found, three from unit 21K53B3. There are 16 sky blue beads; 11 from unit 21K54K7 and three from unit 21K54J4. Unit 21K54J4 also produced 14 of the 22 black beads recovered (Figure 68). Six black beads were from unit 21K54K.

There are 364 white beads from the Fur Trade Period. Unit 21K54J4 produced 111 of these beads (Figure 68) and 101 are from unit 21K54K. A group of 31 beads (21K54610-2229) were found *in situ* in a pattern in which they were deposited. This has been designated as Feature E (Figure 68). Thirty-two beads came from unit 21K53K and 14 from unit 21K52K. The remainder of the white beads are scattered throughout the excavation.

Two of the shell beads are from unit 21K53K4; each is 4 mm long. Another shell bead, 4 mm in length, was found in unit 21K53H6. A longer bead, 6 mm, came from unit 21K52K3. The outer diameter of these beads ranges from 2.5 mm to 3 mm. The beads were made by machine as trade items.

Almost two-thirds (60%) of the beads recovered from this period are from units 21K54J and 21K54K. In fact, most of the remaining beads are from this south-central area of the site. Only eight beads, all of them white, were located west of the 21K54 unit line (Figure 69).

| COLOUR | FREQUENCY |
|---|---|
| White | 364 |
| Black | 22 |
| Sky Blue | 16 |
| Turquoise | 6 |
| Ultramarine | 4 |
| Green | 1 |
| Clear | 1 |
| **TOTAL** | **414** |

Table 10: Frequency of Fur Trade Glass Beads by Colour

### 5.5.10 Miscellaneous, Organic

Forty-eight seeds were collected from this period; 24 are pincherry (*Prunus pensylvanica*). Approximately one-third are from the eastern edge of the excavation; the others are scattered throughout. Four charred hazelnut (*Corylus americana*) shell fragments were found in unit 21K54G13 and a badly charred hazelnut fragment came from unit 21K55A4. Other seeds present include 11 bindweed (*Convolvulus sepium*), one grass (*Gramineae*) and seven unidentifiable specimens (see Appendix B).

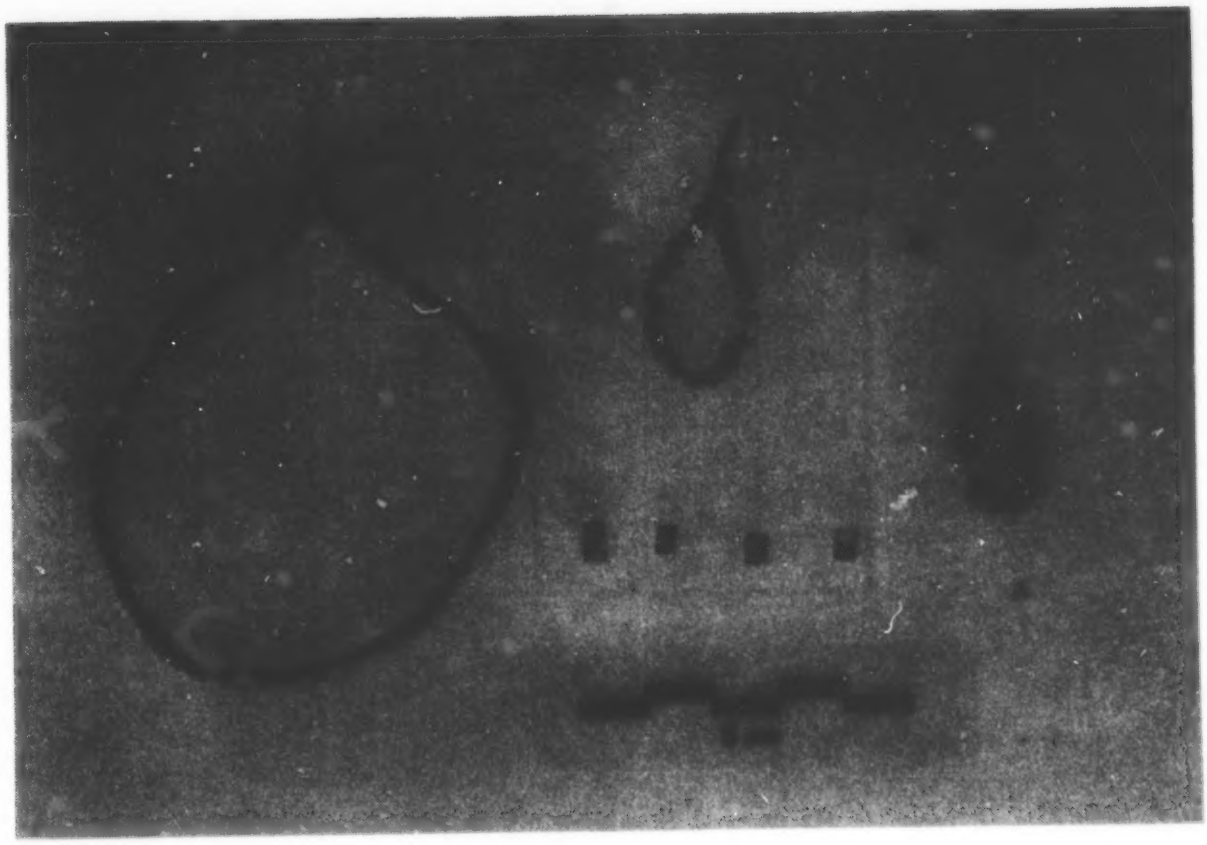


Figure 68: Fur Trade Beads

Top (left to right): 111 White Beads (21K54J9-2212), 31 White Beads from Feature E (21K54G10-2220), Sky Blue Bead (21K54K7-3218), Turquoise Bead (21K54K7-3220); Bottom (left to right): 4 Shell Beads (21K52K3-1307, 21K53H6-3071, 21K53K4-1260), 14 Black Beads (21K54J9-2214), Clear Bead (21K54A4-493)

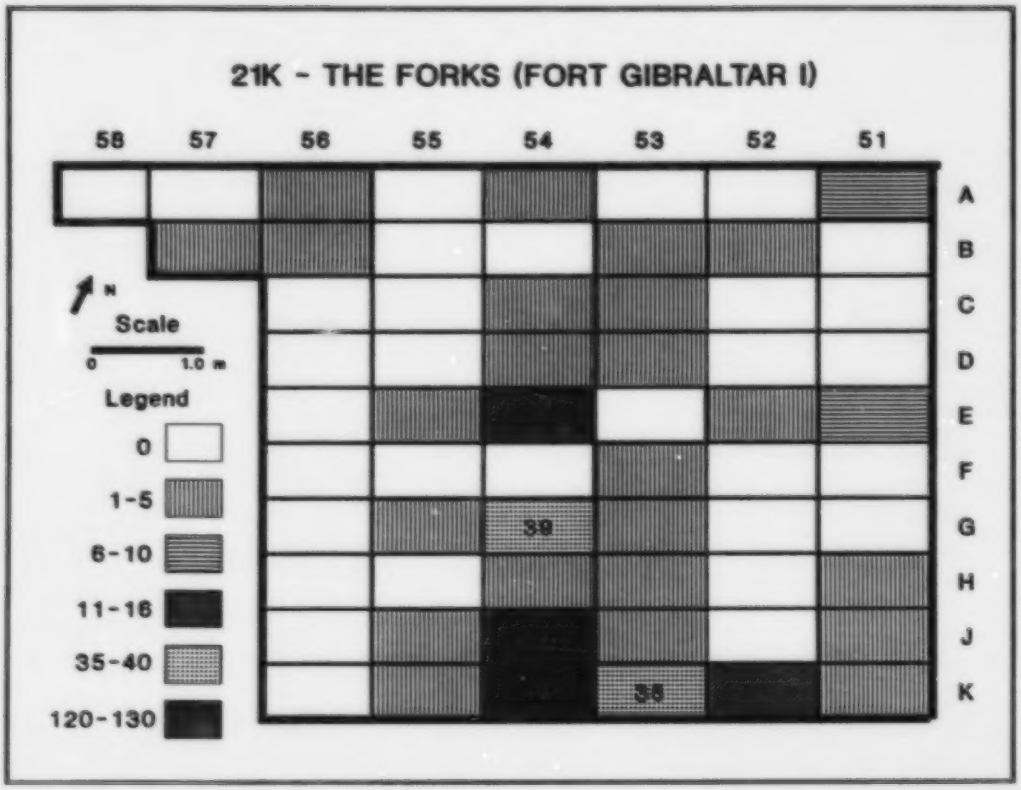



Figure 69: Distribution of Fur Trade Period Glass Beads

Large amounts of burnt wood and charcoal were collected as samples from units 21K53K, 21K54J and 21K54K. Other charcoal is scattered throughout the excavation in smaller amounts.

### 5.5.11 Miscellaneous, Inorganic

The amount of chinking collected totals 2,668 pieces, with an average weight of only 0.7 gm per piece. This means that most of the pieces are very small. Almost 30% of the chinking, by weight, is from unit 21K55K and 18% is from unit 21K53K. The remainder of the chinking was scattered throughout the site with only a small amount in the eastern portion.

Recovered mortar fragments total 347 pieces with an average weight of 0.5 gm per piece. Unit 21K53K produced 82% of this total.

### 5.5.12 Lithics

There are 38 lithic artifacts from the Fur Trade Period. Two lithic tools were recovered from basal levels: a chert end scraper (21K51K7-2932), with a battered working edge, and a thin chalcedony utilized flake (21K53J5-377). These tools may pre-date the occupation of Fort Gibraltar I.

Lithic detritus include five small chalcedony flakes: two from unit 21K54G9; one from unit 21K53J5; one from unit 21K54K8; and one from unit 21K55A4. These may be thinning flakes produced during lithic tool manufacture. Alternatively, they may have been made when a chert nodule was struck with a fire-steel to produce sparks for starting fires.

Other lithic items are ten granite fire-cracked rocks from units 21K52K3 and 21K53K4, five limestone spalls (21K53J4-731), nine quartzite spalls, four siltstone spalls and three pebbles. One of these pebbles (21K53J4-738) is made of granite and two (21K54K3-1224, 21K53J4-738) are quartzite. The five limestone spalls, one of the siltstone spalls (21K53J4-734) and two of the pebbles are from the hearth (Feature F). Eight of the fire-cracked rocks and one quartzite spall (21K53K4-1082) were located within the ash staining (Feature G) associated with this hearth.

### 5.5.13 Fauna

Recovered faunal remains from the Fur Trade Period number 4,454. Table 11 lists the identifications according to faunal class. Mammal remains numbering 1,986 (44.6%) dominate the assemblage (Figure 70). Many of the remains (741) were too fragmentary for even a size determination. A variety of species, however, could be identified from the other remains: bison, beaver, muskrat, skunk and rabbit. Some of the bones exhibit evidence of butchering. The bison scapula and innominate (Figure 71) are spiral fractured and a 'cow/bison' phalanx is split and spiral fractured. Eight other bones are also spiral fractured, three long bones have chop or cut marks and a beaver mandible has chop marks (Figure 72). This butchering indicates that animals were eaten. The deliberate opening of long bones and ribs was probably to extract

| IDENTIFICATION | QUANTITY | |
|---|---|---|
| **MAMMAL** | | **1986** |
| Large Mammal | 49 | |
| Medium/Large Mammal | 1078 | |
| Medium Mammal | 19 | |
| Small/Medium Mammal | 5 | |
| Small Mammal | 35 | |
| Undifferentiated Mammal | 741 | |
| 'Cow/Bison/Moose/Elk' | 1 | |
| Undifferentiated Artiodactyla | 2 | |
| 'Cow/Bison' | 3 | |
| Bison | 2 | |
| Carnivore | 1 | |
| 'Wolf/Dog/Coyote/Fox' | 6 | |
| Beaver | 20 | |
| Muskrat | 1 | |
| Skunk | 1 | |
| Rabbit | 8 | |
| Small Rodent | 14 | |
| **BIRD** | | **52** |
| Large Bird | 3 | |
| Medium/Large Bird | 2 | |
| Medium Bird | 4 | |
| Small/Medium Bird | 1 | |
| Undifferentiated Bird | 39 | |
| 'Duck/Goose' | 2 | |
| Swan | 1 | |
| **FISH** | | **868** |
| Undetermined Species | 814 | |
| Sturgeon | 31 | |
| 'Catfish/Bullhead' | 21 | |
| 'Mooneye/Goldeye' | 1 | |
| 'Walleye/Sauger' | 1 | |
| **REPTILE** | | **1** |
| Turtle | 1 | |
| **AMPHIBIAN** | | **8** |
| 'Frog/Toad' | 8 | |
| **SHELLFISH** | | **175** |
| Freshwater Clam | 98 | |
| 'Fingernail/Pea' Clam | 42 | |
| Pink Heel-Splitter | 35 | |
| **GASTROPOD** | | **74** |
| **UNDETERMINED CLASS** | | **1290** |
| **TOTAL FOOD REMAINS** | | **4454** |

Table 11: Identification of Fur Trade Faunal Remains

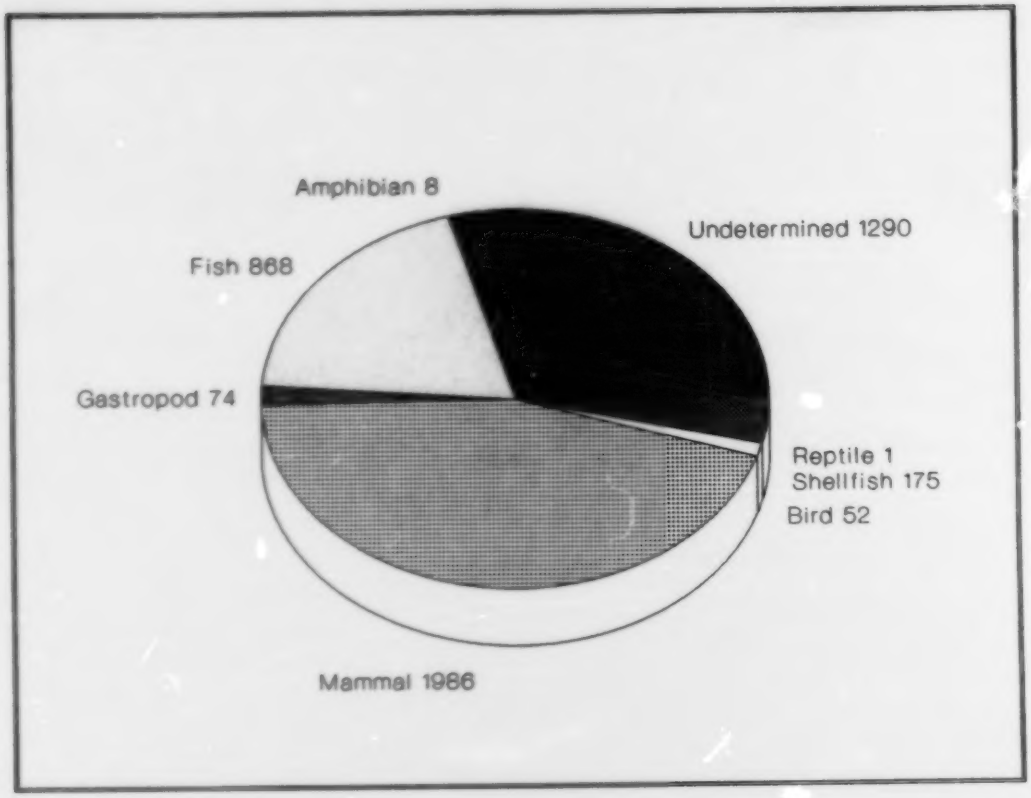



**Figure 70: Fur Trade Faunal Frequencies**

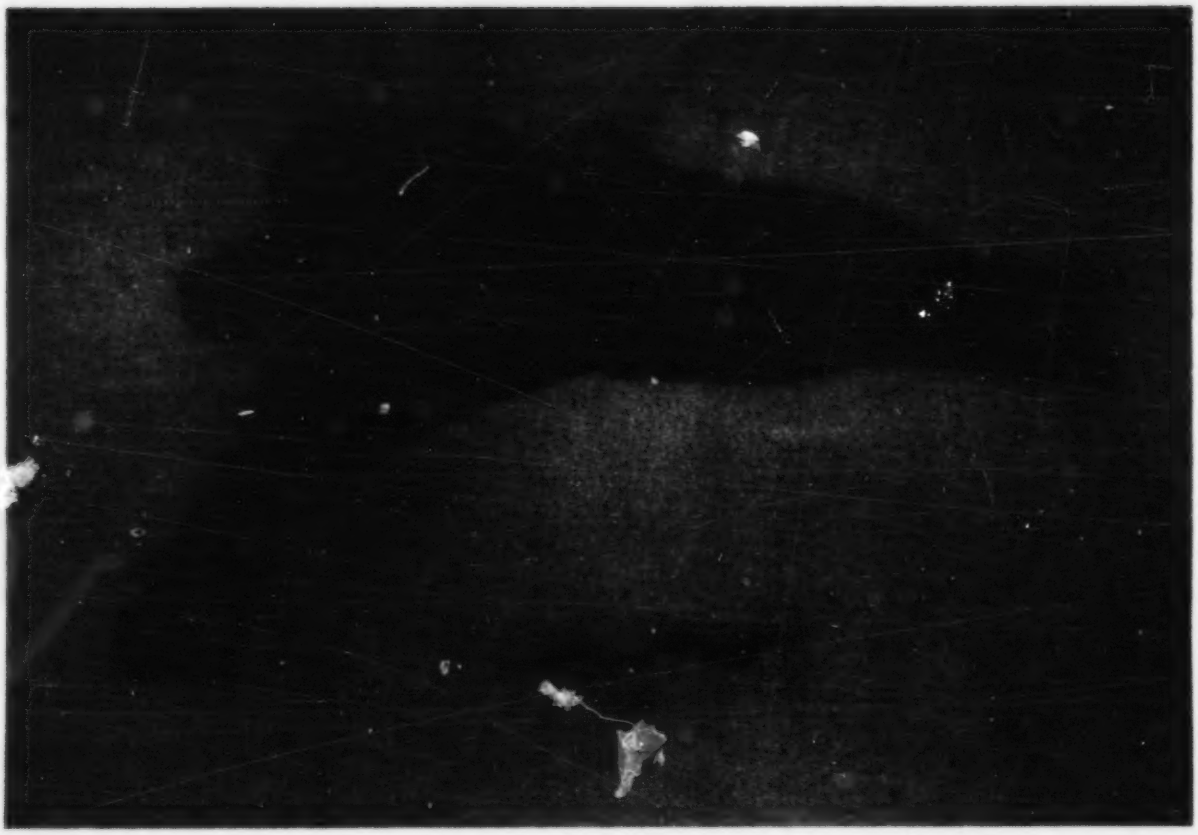


Figure 71: Bison Innominate with Spiral Fracture (21K55K6-3067)

Figure 72: Beaver Mandible (21K55A8-2219)

the marrow for consumption. Almost three-quarters (74%) of the mammal remains are burnt or calcined.

Fish remains number 868 (19.5%), including 31 sturgeon, 21 'catfish/bullhead,' one walleye and one 'mooneye/goldeye.' The other 814 remains could not be identified as to species. A small number (46) of the remains are burnt or calcined. Bird bones number 52, including a swan carpometacarpus with cut marks and two 'duck/goose' bones.

The faunal remains indicate the dominance of mammals and fish in the assemblage. This is probably reflective of the diet of the inhabitants of Fort Gibraltar I. The 1984 excavation at Fort Gibraltar I recovered a similar type of faunal assemblage (Smith 1985).

#### 5.5.14 Summary

The Fur Trade Period was not well defined by the excavation. Indeed, this period was not reached in units 21K51C, 21K51D, 21K51F, 21K52A, 21K52H, 21K53A, 21K56F, 21K56H and 21K58A. In many other units, excavation was terminated before the entire Fur Trade horizon was examined. Investigation would have to continue until the base of the layers associated with this period was reached in order to obtain a full recovery of Fur Trade material.

There is a noted absence of many artifacts such as ceramics, smoking pipes, bottles and metal artifacts including buttons. Most of the artifacts which were found came from the hearth/disturbance area in units 21K53K, 21K54J and 21K54K. The high amounts of chinking and mortar from these units may indicate the presence, at one time, of a structure in this area.

### 5.6 Stratigraphic Pit

There were 21 artifacts found in the stratigraphic pit (52A). None was assigned to a level and each was subsequently inventoried under catalogue number 21K52A-98.

#### 5.6.1 Glass

There are two sherds, possibly assignable to bottles: one brown and one clear. Five flat glass fragments, one aqua, one green and three clear, were recovered.

#### 5.6.2 Smoking Pipes

A kaolin pipestem fragment, 17 mm long, was found.

#### 5.6.3 Historic Ceramics

A salt-glazed stoneware sherd, with a brown glaze on one surface and a grey-buff glaze on the other, was curated.

#### 5.6.4 Fauna

There are 12 faunal remains: one large and one small mammal long bone, six unidentifiable medium/large mammal, two sturgeon scutes and two unidentifiable fish bones.

# 6.0 INTERPRETATION: 1989 Fort Gibraltar I Excavation

## 6.1 Railway Period (1888-1988)

The major developments of the Railway Period at The Forks are well documented in the historical record of the City of Winnipeg. Archaeological interpretation of this period will rely on these documents, with the archaeological record being used to, in some instances, confirm location of specific developments or to add an archaeological perspective to what is known from the historical record.

The excavation was located on "the flats" of the Red River, near the junction of the Red and Assiniboine rivers. The land was low and, in the past, flooded periodically. Prior to being used for rail yard development, the surface had to be built-up and levelled.

In 1888, Charles Brydges, then Hudson's Bay Company Land Commissioner, and the individual responsible for the sale of the area to the newly-formed Northern Pacific and Manitoba Railroad Company, stated that the railway company intended to raise the ground level "about four feet" (Guinn 1980a:140). This was to be accomplished by grading and levelling, and then by dumping gravel in the area. The following year, construction of a "ten stall roundhouse, a repair car shop, and a blacksmiths' shop, all solid brick and connected under one roof " (Guinn 1980b:4) was initiated.

This building, minus the roundhouse, still stands and is located immediately southwest of the excavation area. It is commonly known today as the B&B Building, so named because of its function as the Bridges and Buildings Department depot during the era of railway activity associated with Canadian National Railways.

In the 1989 excavation at The Forks, the main manifestation relating to the later Railway Period is the fill and overburden level which overlays the natural soil surface of the area.

About 1.75 m of post-1889 railway deposits are found in the excavation area. Most of this material is made up of products produced from coal-fired steam generation. The materials may have come from steam locomotives, or from the stationary steam plant built, post-1918, some 200 m to the west of the excavation. Within this cinder and ash matrix are the gamut of debris produced by railway activity. Discarded ties, rails, wood and wire are found throughout the overburden level. Broken bottles, earthenware jugs, window glass and cut bones are also mixed throughout this matrix.

Considering the volume of material that covers the area, the time taken to build up the vast amount of railway fill over the area was considerable. It likely lasted until the time steam locomotion was replaced by oil-burning Diesel engines. Since this thick level of debris has formed a protective cover over the earlier surface, recent activities in the area have not disturbed the buried soils and cultural features present in the area.

Evidence of the refuse from the blacksmiths' shop was found on the surface of the natural soils in the central area and western end of the 1989 excavation. A mass of rust, metal scraps, bolts, nails, wire, machine fragments and barrel hoops (Feature A) form part of the evidence of this use of the area. This area was also likely used as a general dumping area since bottles, window glass and other discarded materials were recovered in this feature.

As this feature was found on the surface of the natural soils of the area, and since no evidence of gravel dumping or grading could be found in the area, indications are that all of the railway fill and debris in the excavation area are post-1889. No evidence of any major sub-surface disturbance was found during the 1989 investigations. Of importance to the integrity of the sub-surface materials is the apparent lack of evidence of the early gravel dumping and levelling of this area of "the flats," as reported by Brydges in 1888.

## 6.2 B&B Construction (1888/89)

While encompassed within the Railway Period, the construction, of the car repair shop and adjoining roundhouse, has produced sufficiently distinct evidence to be considered as a discrete event. Most of the evidence for the event is found in the soils record. Five separate strata were observed in the western portion of the excavation, all of which directly relate to the construction. Discussions at the site, with a retired bricklayer, yielded the information that the patterning of the "Australian Camouflage" layers probably results from mortar preparation during cold weather.

In addition, a feature containing nine bricks (Feature B) of the same sort used to construct the building, was partially excavated in the south-west corner of sub-operation 57B in a depression surrounded by sands of various colours, textures and coarseness. No artifacts were recovered from this feature. Complete excavation of this feature is recommended for future projects.

Many recovered artifacts, including a large quantity of machine-made metallic specimens, are railway-related. The admixture of these, and other artifacts such as the red lantern sherds, are a result of railroad activity during the construction period, as well as slight surface disturbance at a later period.

Artifacts that are contemporaneous with the construction activity include bottle fragments, windowpane sherds, nails (both sheet-cut and hand-wrought) and the bricks in Feature B.

The presence of earlier artifacts, within the lower strata of this period, represent surface disturbance during construction. Material on, or immediately below, the ground level would have become incorporated in the basal levels of the B&B phase. These include a kaolin pipe stem, two white ceramic body sherds, a ferrous button, an awl, a copper tinkling cone, a lead shot, two beads, a gunflint and fragments of chinking.

Some of these, especially the gunflint and the tinkling cone, were recovered adjacent to Feature B and, if the depression was an excavation related to construction activities, may have been vertically displaced. The other artifacts may relate to the Immigration Period (1872-1885). They tend to indicate limited domestic activity, as would be expected in the area between the Immigration Sheds to the west and the Shanty Town, on "the flats" to the east.

### 6.3 Post-1826 Flood to Pre-Railway Level

As with the railway level, considerable historical documentation exists for events that occurred in The Forks area between 1826 and 1888. The stratigraphic evidence for some of these historical events, while present in the 1984 excavations at 21K, were lacking or poorly represented in the area of Fort Gibraltar I excavated in 1989. The opposite is also true; some events present in the 1989 excavations were absent in those conducted in 1984.

When comparing one locale of the area to another, stratigraphic sequences at The Forks are highly variable. Even within the small area of the 1989 operation, variations in the thicknesses of some of the strata present were considerable. For example, the sand level, defined in 1989 as part of the 1826 flood, was up to 30 cm thick in the western areas of the excavation, tapering off to a few grains in the eastern portion. This sand level was not present in the 1984 excavation.

Although this variation must always be a consideration when discussing the sequence, there may be other reasons for such differences. As previously noted, there was no apparent evidence of grading and gravelling in preparation for use of the area by the railway. There did not appear to be any disturbance to the ground surface, which could have destroyed much, if not all, of the stratigraphic evidence of previous events. There was also no layer of gravel fill between the natural soils below the B&B Building phase and the beginning of the deposition of the cinder and ash of the post-building period. Since the prime reason for the levelling and filling was to raise the elevation of the area with gravel, the absence of this material suggests that no levelling or grading took place in this area of The Forks. Thus, the absence, in the 1989 excavation, of some of the strata which were observed during the 1984 project, is not considered to be caused by levelling, soil removal or alteration.

Unfortunately, few temporally diagnostic artifacts, dating between the 1826 flood and the Railway Period, were recovered in either of the excavations at Fort Gibraltar I. Thus, interpretation of historic events which occurred in the area will depend strongly on the stratigraphic sequences.

Three distinct strata are present between the railway fill stratum and the level defined, in 1989, as the sand layer of the 1826 flood. Layers 8, 9 and 10 are silty clays. The upper layer is a mottled, dark brown to tan clay found directly below the Railway Period or B&B Construction deposits. The artifacts recovered from this level date to late 19th century and include an 1875 American one-cent-piece. Layer 9, a tan to buff coloured silty clay, contained few identifiable artifacts. Layer 10 is a brown, mottled,

silty clay with organic stains. These stratigraphic data can provide support for two differing hypotheses. Hypothesis A is predicated upon the assumption that most of the three recorded historic floods (1882, 1861, 1852) have left evidence of their occurrences. Hypothesis B assumes that, even with the occurrences of the floods, stratigraphic evidence need not be present.

### 6.3.1 Hypothesis A

Layer 8 is considered to be evidence of either the 1882 or 1861 flood. A single post mold, extending from Layer 8 down through Layer 9 into the sands of the 1826 flood, was recorded.

Layer 9 is tan to buff coloured, silty clay. It contains few identifiable artifacts; none can be dated with accuracy. Unless from an undocumented flood episode, this level could be considered evidence of the 1852 flood although it was not defined as such during the excavation. It is a silt deposit. The deposit reported as evidence of the 1852 flood in the 1984 excavation (Preiss *et al.* 1986:105) is thick sand.

Layer 10 is a brown, mottled, silty clay and is a plow zone. Its deposition is considered to be a product of the upper layer of the 1826 flood. In the 1984 excavation, the 1826 flood is represented by up to three separate silty clay deposits, ranging from 16 cm to 30 cm thick ( Preiss *et al.* 1986: 110). Sand deposits from the 1826 flood episode are absent in the area excavated in 1984. During the 1989 excavation, a thick deposit of flood sands occurs between two levels of silty clays. The lower deposit of these silty clays rests on the surface of the remains of Fort Gibraltar I and is overlain by the sand deposit.

The sand deposit is considered to be evidence of the peak flows of the 1826 flood and a result of the heaviest materials having settled after the height of the flood passed. The lighter materials, deposited on the sands after the flood began to recede, are in the upper level of silty clays. This deposit, as evidenced by the plow zone, provided the soils for the 1836-1848 Experimental Farm. Artifacts from this level are, for the most part, non-diagnostic. There is evidence of rodent disturbance. It should be noted that no evidence of a plow zone was recorded from the Experimental Farm level in 1984.

### 6.3.2 Hypothesis B

All three strata (Layers 8,9 and 10) are considered to be the lighter fraction of sediments deposited by the 1826 Flood. The heavier fraction (Layer 11) consists of the sand layer which is thickest at the western edge of the excavation and grades to a few grains at the eastern edge. During the 1984 project, this natural event was considered to be represented by three silty clay layers (Priess *et al.* 1986: 110). These may be continuations of Layers 8, 9 and 10.

Within this hypothesis, no discrete stratigraphic layers are considered to represent the later floods. If any sediment was deposited by these events, it was incorporated into the upper A Horizon (Layer 8) of the existing active soil surface. Thin deposition layers of silt or silty clay would not have resulted in a discrete stratigraphic zone,

but would have been modified by vegetational activity and soil formation processes to resemble the original A Horizon.

The three strata are interpreted as a standard soil profile with Layer 8 representing the A Horizon, Layer 9 representing the B Horizon and Layer 10 representing the largely unaltered C Horizon. Although the agricultural activity of the Experimental Farm (1836-1848) would have resulted in mixing of the upper zone of the silts and clays deposited by the 1826 flood, the hiatus between 1848 and the deposition of the B&B Construction and Railway Period levels would have resulted in the formation of definite soil horizons.

Artifacts that date to the later portion of this episode, such as the 1875 coin, would have been deposited on the existing ground surface. No doubt, many of the glass bottle sherds, windowpane fragments, clothing items and ceramic dinnerware sherds, would have originated as surface deposits during the Immigration Sheds/Shanty Town phase. A similar deposition process would have occurred for sheet-cut nails. In fact, for the eastern portion of the excavation area, surface deposition onto Layer 8 could have occurred until the formation of the blacksmiths' dump (Feature A), circa A.D. 1900.

Some artifacts appear to be related to the establishment of the Experimental Farm stables (1836-1848). The numerous hand-wrought nails probably derive from sheds or barns of this event. It is probable that some of the clothing items, such as buttons, leather and cloth, were deposited during this period. The preponderance of bones from domesticated species indicates a heavy reliance upon farm animals for protein.

No structural evidence for the stable complex was located, although a post mold (Feature C), perhaps relating to a fence, originated in Layer 8. A manure layer had been discovered during the 1984 operations, although it was temporally assigned to the period between the 1852 and 1861 floods (Priess *et al.* 1986). A similar stratum, containing fragments of shoes and butchered elk (*Cervus cervus*) bones, was encountered to the west of the Fort Gibraltar I site, during archaeological monitoring of water main installations (FRC 1990). The deposition of a layer of manure is probably related to the housing of domestic animals at the Experimental Farm stable complex.

A wine bottle, that may date as early as the 1820-1830 period, was recovered from Layer 8, in unit 55B and unit 52B. The horizontal displacement of the fragments of this specimen suggests mechanical movement of the individual sherds. This is most easily explained by soil disturbance caused by plowing during the agricultural period. Unfortunately, no artifacts from these three strata can be assigned to a relatively narrow time period which would encompass the Experimental Farm phase. Items like buttons, kaolin pipe stems and glass sherds are singularly undiagnostic.

## 6.4 1826 Flood

The flood of 1826 was a major calamity for the residents of the Red River valley. A letter by John Pritchard notes that the flood began on May 5, and the residents sought refuge on high ground at Silver Heights, Stonewall Ridge and Pine Ridge (now known as Birds Hill). He wrote:

> ...the crashing of immense masses of ice was as loud as thunder; neither the tallest poplar or the stoutest oak could resist its impetuosity. They were mowed down like grass before the scythe. Far as the eye could discover, the earth was covered with water carrying on its surface the wreck of a whole colony. Houses, barns, stables, fences, and in fact all that could float was prey to the destructive element. (Jackson 1970: 64-65)

As the flood waters did not begin to recede until June, thick layers of silt and clay would have settled out of the relatively stationary waters. Current interpretation is that the sand stratum (Layer 11) would have been deposited during the first phase of the flood, with the subsequent layers of silts and clays being laid down when the waters became stationary. Layer 12 is tentatively considered to be a deposit that occurred during the first rise of the waters. In fact, it may have originated during minor high-water episodes after 1816 and prior to 1826.

The artifacts from the flood horizon are concentrated in the western portion of the excavation, along with the thickest sand deposits. Some of the specimens are definitely anomalous; sheet-cut nails, which derive from the late 19th century, and Blackduck ceramic fragments, which pre-date the late 18th century. Evidence of rodent activity was observed, in the form of in-filled tunnels. This action can explain the downward displacement of more recent artifacts into earlier strata. The erosional and transport behaviour of flood waters can explain the presence of the Native ceramic sherds and artifacts that probably derive from the occupation of Fort Gibraltar I. Lead shot, beads and chinking, located in this stratum, would have been relocated by the flood waters swirling through the burned ruins of the fort.

## 6.5 Fur Trade Period

Artifacts currently assigned to the Fur Trade Period were recovered from several units. As many units had not been excavated to the base of the Historic Period, interpretation of this episode is tentative. Sixteen soil layers were defined below the zone that is interpreted as the 1826 Flood. These strata consist of silts, silty clays, and clays with mixtures of ash, charcoal, chinking, bone and organic stains. Several features (E-L) have been defined within this time period (Figure 73). Many of these features appear to pertain to structural elements, attributed to Fort Gibraltar I. Feature H and Feature J appear to be the remnants of buildings. The charred condition of the wood (Feature H) and the reddened nature of the chinking (Feature J) suggest that the material was burned, either in its original location or in a subsequent location

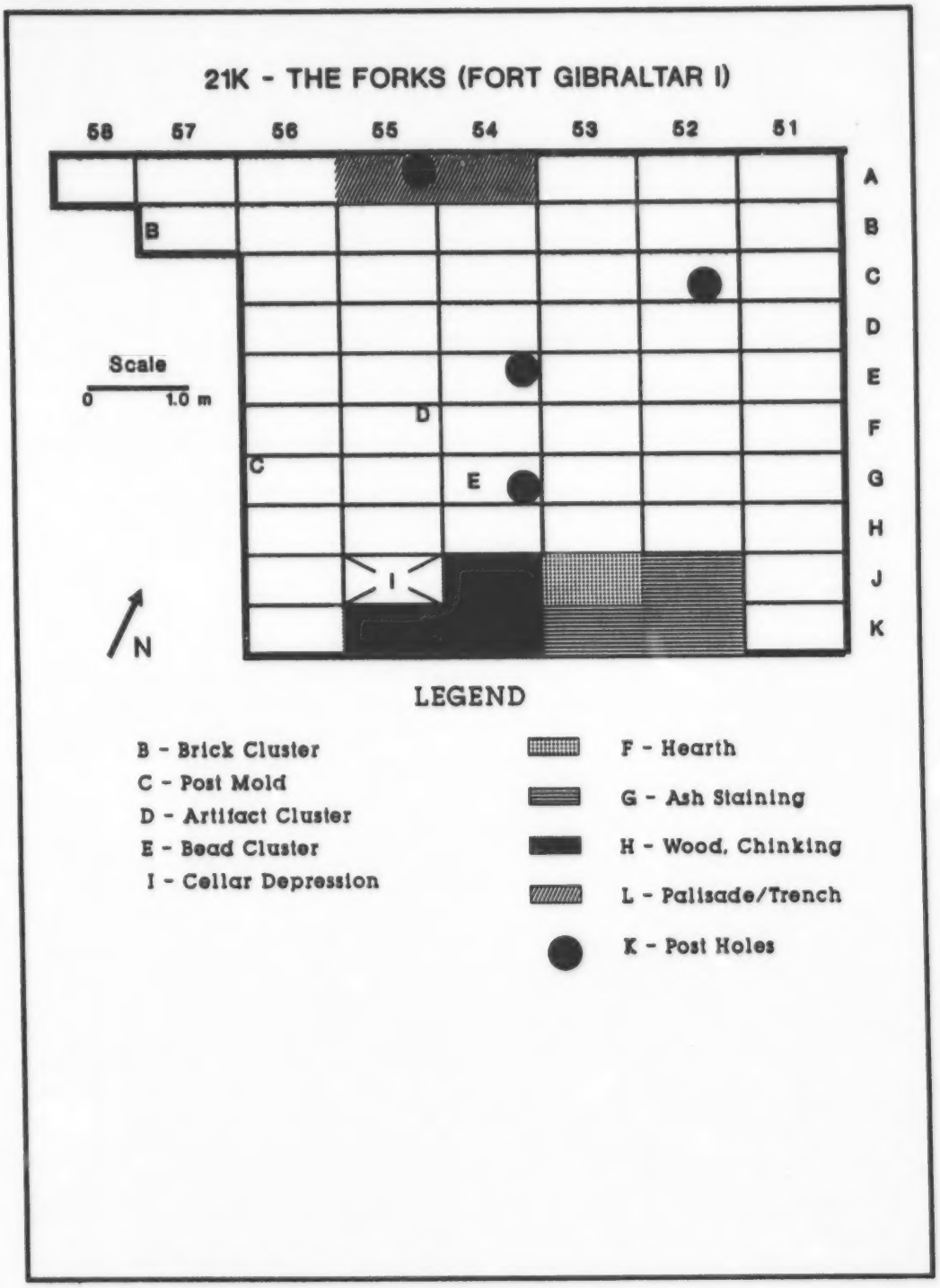



Figure 16: Feature Locations

after the dismantlement of the fort in 1816. The presence of a possible cellar depression (Feature I), adjacent to the charred wood, could indicate the presence of a structure at the southwestern edge of the excavation.

Additional structural features were observed. Four post holes (Feature K) were recorded (units 55A, 54E, 54G and 52C). These appear to originate below the soil horizon (Layer 11). Due to the placement, and the small number of holes, no orientation for a fence, or fence-like structure, can be determined.

A potentially important discovery was Feature L (units 55A and 54A). The presence of a trench, containing one, and possibly more, of the post holes (see Figure 32), could represent the location of the external palisade of Fort Gibraltar I. As the palisade was dismantled in 1816, it would be expected that little, if any, wood would remain in the trench. Figure 33 depicts several strata truncated by an excavation, which appears to be subsequently in-filled with organic material (possibly leaf litter or plant remains) and ground wash of silts. If this is, indeed, the remnant of the north wall of the palisades of Fort Gibraltar I, minimal additional testing would be required to determine the exact placement of the outer perimeter of the fort.

Feature F and Feature G appear to be associated. The stratigraphy of the south wall is extremely complex and appears to indicate more than one disturbance activity. The hearth and the ash staining underlie Layer 11 (1826 flood sand). The ash feature, however, intrudes into, and truncates Layer 16, which occurs between the two Fur Trade artifact-bearing strata in unit 54G. Since the hearth was lined with limestone cobbles, probably derived from the remnants of chimneys of the dismantled fort, it would have occurred after 1816 and prior to 1826. The sequence of events that would give rise to the convoluted soil strata in Feature G is, at present, poorly understood. Possible explanations include: black-eddy erosion during the 1826 flood; ice scouring during the 1826 flood; excavation of a hole between 1817 and 1826 to the south of the archaeological project; or disturbance of the ground during the demolition of the structures of Fort Gibraltar I.

The presence of a sterile stratum (Layer 16) between artifact-bearing levels raises the possibility that a minor flood, during the occupation of Fort Gibraltar I, deposited a silty clay layer. The chinking, charcoal and burned wood occur above this stratum, while similar artifacts are found above and below it. The bead pattern (Feature E) occurs within the lower section of artifact-bearing strata. To complicate matters, most of the Fur Trade soil strata are discontinuous. Localized soil modification, reflecting specific activity areas would be expected, however, in an active occupation site. Excavation of the remainder of the units, as well as linking the 1989 operations with the units of the 1984 project, is necessary to provide the comprehensive data required for interpretation of this complex site.

### 6.6 Summary

The archaeological interpretation of the site is complicated by the complexity of the soil profiles and the disjunct nature of most of the soil strata. Many layers are localized and do not correlate with adjacent soils more than one or two metres distant.

Thus, it is not surprising that there are differences in the recorded strata during the 1984 and 1989 projects. The presence or absence of specific strata can produce differing interpretations. In fact, as evidenced by the presentation of two hypotheses concerning the depositional regime after the 1826 flood, more than one explanation can be applied to a sequence of strata.

Some cultural and natural events are not represented in the stratigraphic record in both, or sometimes, in either the 1984 or 1989 excavation. As a result, despite similar occurrences, when comparing the data from the two excavations, there are considerable variations in the soil sequences. Table 12 illustrates the sequence of known major cultural and natural events that occurred in this area of The Forks since the establishment of Fort Gibraltar I. The discoveries of each of the projects are depicted (Table 12).

| EVENT | 1984 | 1989 |
|---|---|---|
| Railway Period Fill (Post-1889) | Present | Present |
| B&B Construction (1888/89) | Absent | Present |
| Railway Levelling/Gravel (1888) | Absent | Absent |
| 1882 Flood | Defined | Not Defined |
| Immigration/Shanty Town (1872-1885) | Absent | Artifacts |
| 1861 Flood | Defined | Hypothesis A |
| Manure Layer (1852-1861) | Present | Absent |
| Post-1852 Activity | Present | Not Defined |
| 1852 Flood | Present– major sand horizon | Hypothesis A |
| Experimental Farm (1836-1848) | Picket Fence? | Plow Zone Artifacts |
| 1826 Flood | Present as a silt horizon | Present as sand and silt layers |
| Fort Gibraltar I | Present | Present |

Table 12: Major Cultural and Natural Events

The sequence from the 1989 excavation appears less complex than that recorded during the 1984 project. It must be noted that the 1984 excavation consisted of units dispersed over a larger area than the 1989 excavation. The 1989 operation was undertaken as a block excavation within a 6 m x 5 m area. The disjunct nature of the soil strata is such that no single excavation unit will contain evidence of all known occurrences. Accordingly, excavations during 1984 will have encountered more stratigraphic layers, as more locations were sampled.

The interpretations from each of the projects rely upon the synthesis of data from the entire excavation. Further excavations, which join the two excavation areas, will be necessary before a better understanding of the stratigraphic sequences will be developed. Block excavations are required to delineate small, activity-specific strata, which do not extend across the entire location. Continued research will result in re-evaluation and re-definition of the stratigraphy, the nature of the cultural activites at the site and the processes of natural events. This report, as well as the report on the 1984 project, is seen as a baseline upon which future research can build.

## 7.0 RECOMMENDATIONS

The primary recommendation is that the public archaeology program continue. Some fine-tuning, concerning day-to-day operations, is required and is addressed in the Administrative Report. In the broad sense, the project was a resounding success: hundreds of members of the public were able to participate in "hands-on"archaeology, with its attendant joys and frustrations. In addition, a research contribution to the archaeology of The Forks was made. By maintaining a 2:1 volunteer to professional ratio during the project, the archaeological excavation was conducted to professional standards. As a consquence of the educational aspect of the program, the pace of the project was slower than would have occurred had the project been staffed solely by professional archaeologists. In locations which will not experience developmental impact for the foreseeable future, public archaeology programs may be the route for future research projects. Where timeframe is a prime consideration, such projects may not be feasible.

Other recommendations are consequent upon implementation of the primary recommendation. It is recommended that any continuation of the 1989 Pilot Public Archaeology Project be located at the same site. The remainder of the unexcavated portions of the 1989 site grid should be excavated to the base of the historic levels. Several units should be excavated to a considerable depth (approximately one to two metres) below the historic levels to ascertain the presence or absence of Proto-Contact and Pre-Contact Native horizons.

It is recommended that all future projects concentrating upon research of Fort Gibraltar I be undertaken as block excavations. The soil strata, due to their compexity and disjunct nature, are best understood when they can be examined in a larger context. In addition, integration of multi-disciplinary studies, concerning soils, deposition regimes and palaeo-botanical studies, into future archaeological projects at The Forks, is recommended. Opportunities for involvement of geographers, geologists, sedimentologists, botanists, palynogistics, zoologists, historians, archivists and other researchers should be created wherever possible.

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# APPENDIX A

## List of Volunteers
## (1989 Pilot Public Archaeology Project)

## Volunteer List for 1989 Program

Acton-Peters, Beverly
Allard, Rene
Appel, Sharon
Armstrong, Jeanne
Ayed, Ayeda
Bamburak, David
Baronas, Al
Beattie, Lyle
Block, Jeanette
Block, Sam
Boux, Leandre
Braun, Tod
Breen, Sheila
Brisebois, Pamela
Brown, Christopher
Bruni, Edlyn
Bruni, Kirsten
Buisson, Meaghan
Carignan, Marcel
Carter, Irene
Champagne, Agnes
Clark, Ellie
Clark, Lee-Anne
Clark, Samantha
Cloutier, Riel
Cobb, Bonita
Cobb, Bryan
Cockriell, Betty
Covvey, Beth
Coyston, Shannon
Crabbe, Colleen
Dajic, Andreas
Dajic, Mirko
Dajic, Monica
Danyluk, Tom
Day, Jeremy
Dengate, Eda
Desilets, Lynn
Desrosiers, Christina
Diakiw, Julie
Dobie, Maureen
Dobson, Michael
Duboff, Carly
Duboff, Matthew
Duboff, Susan
Feher, Ernie
Feilberg, Lorna
Fortier, Jacqueline
Foxworthy, Kyle
Freynet, Ginia
Freynet, Raphael
Friesen, Nathan
Gagne, Teresa
Garland, Gideon
Garland, Marshall
Garland, Matthew
Garrett, Thomas
Gauthier, Dominique
Gibson, Andy
Gibson, Michael
Goodwin, Allan
Goodwin, Val
Goodwyn, Barbara
Guerin, Pierre
Gunn, John
Harding, Allan
Harding, Marion
Henderson, Pam
Hibbert, Kristin
Hicks, Jack
Hlynka, Anthony
Hlynka, Markian
Hoemsen, Ray
Hoemsen, Travis
Hurrell, Debbie
Hutchison, Caitlin
Hutchison, Cam
Hutchison, Nancy
Jaworski, Kevin
Johns, Marcus
Johns, Robin
Kalcsics, Hilda

Kalcsics, Sarah
Karpyshin, Miika
Key, Megan
Kleiman, Helen
Kleiman, Soody
Kohut, Jennifer
Kraus, Gunter
Land, Marian
Lawlor, Karen
Leblanc, Leanne
Legal, Catherine
Legal, Jacqueline
Legall, Huguette
Lesage, Frederik
Lesage, Mathieu
Lesage, Thierry
Lester, Tanya
Litchfield, Jennifer
Lusk, Jason
Lutz, Liana
MacDonald, Lois
MacRae, Maxine
MacRae, Melanie
Mahoney, Ken
Malasiuk, Jordi
Martin, Matti
Matheson, Linda
Mayer, Peter
McCarville, Mike
McCormack, Tracy
McCullough, Robbie
McKay, Gina
Melanson, Paul
Meunier, Christta
Meyer, Joyce
Miketon, Adrian
Millar, Brent
Mirosh, David
Morrisett, Lorraine
Morrisett, Margaret
Nelson, Gil
Nelson, Rebecca
Nesbitt, Andrew
Nesbitt, Rose-Anne
Nestruck, Stacey
Newcombe, Claire
Newcombe, Felice
Newcombe, Frances
Nicolas, Gilles
Nicolas, Matthew
Nicolas, Michelle
Oakes, David
Oakes, Paul
Olchowecki, Joanne
Oommen, Mark Paul
Oommen, Matthew
Oommen, Ruth
Painchaud, May
Palmer, Cydney
Paton, George
Peters, Gary
Petrakos, Peggy
Pflueger, Dan
Podolchuk, Allan
Pook, Richard
Puloski, Irene
Puloski, Reid
Quiring, Darren
Rankin, Lynn
Rankin, Matthew
Richman, Harold
Ritchot, Stella
Robertson, Thomas
Rocan, Norma
Rocan, Ron
Rubachuk, Helen
Russell, Dave
Sadler, Joan
Sadler, John
Saurette, Kathleen
Saurette, Kathryn
Savard, Joel
Savard, Lisbeth
Sawatzky, Connie
Sawatzky, Nancy
Saydak, Alan
Saydak, Marion
Saydak, Patrick
Searle, Sharna
Sechia, Maya
Shelton, Lisa
Simcoe, Joyce
Soble, Jacqueline
Steeple, Charlie

Steinhoff, Mary
Stevens, Chad
Stevens, George
Streich, Laurie
Sutherland, Jo Ann
Taylor, Tannis
Thurston, Irene
Tichborne, Melissa
Toews, Andrew
Toews, Mary
Ubungin, Charmaine
Van Damme, Audrey
Van Den Beuken, Krista
Verstraete, Larry
Verstraete, Stephen
Villatoro, Maurice
Villatoro, Maurice Jr.
Vivier, Brandice
Ward, Kirsten
Ward, Linda
Wardrop, Jo-Ann
Warner, Michael
Wazny, Eileen
Wazny, John
Wazny, Michael
Wazny, Peggy
Wilson, Dawn
Wilson, Jennifer
Wilson, Lynne
Wilson, Michelle
Wilson, Sharon
Windsor, Dennis
Windsor, Heather
Wyatt, Russ
Young, Adam
Young, Douglas
Young, Kim
Young, Sarah
Zaplachinski, Karen
Zink, Helen
Zuk, Bill
Zuk, Diane

## List of Participating Schools

St. John Brebeuf School, Jim Falloon (Teacher), Grade 6
Jefferson Jr. High School, Lucy Bauer (Teacher), Grade 8
Victor Mager School, Marlene Murray (Teacher), Grade 6
Lavallee School, Mr. Fraser (Teacher), Grade 6
Inkster School, Cathy Wiktowy (Teacher), Grade 6
Monsignor James K. McIsaac School, Chris Baetsen (Teacher), Grade 8
Wolseley School, Ellen Kolisnyk (Teacher), Grade 6
Harry S. Paul School, Anna Mae Wiesenthal (Teacher), Grade 8
H.C. Avery School, Shelley Maslow (Teacher), Grade 5

# APPENDIX B

## Analysis of Plant Remains

by
D. M. Deck and C. Thomas Shay

# Preliminary Report of the Plant Remains From the 1989 Excavation at The Forks

D.M. Deck and C. Thomas Shay
January 1990

## Introduction

The 1989 excavation at The Forks National Historic Site was sponsored by Canadian Parks Service, The Forks Renewal Corporation and Manitoba Culture, Heritage and Recreation. The excavation concentrated on a 5 m x 6 m area and recovered remains belonging to several historic occupations including Fort Gibraltar I (ca. 1810-1816), the Hudson's Bay Company Experimental Farm (ca. 1836-1848) and the more recent use of the Canadian National Railways yard (ca. 1880s-1980s).

## Methods

Some seeds and charcoal fragments were recovered by hand during excavation and through water-screening at the site. In addition, a number of bulk soil samples were taken for recovery of seeds and charcoal through flotation. This preliminary report covers only the seed remains recovered during excavation. Some indentifications are provisional because we are in the process of verifying these specimens with modern reference material. The analysis of charcoal and wood is still in progress although we have noted the presence of conifer in the samples.

## Results and Discussion

Detailed results are listed in Table 13 although a few comments about two of the types are warranted at this early stage of our analysis. The wild cherry (*Prunus*) pits and hazel nut (*Corylus*) shell fragments are commonly found in late Pre-Contact sites in southern Manitoba. While all of the nut shell fragments had been charred, no cherry pits were charred. Either the cherry pits represent food remains of one or more of the 19th century occupations or they derive from more recent vegetation and are intrusive. This question cannot be resolved with the evidence at hand. It would be useful to plot the location, depth and associations of the charred and uncharred remains in order to see if there is some pattern in their distribution. Analysis of the flotation samples may also help to resolve this question.

## Acknowledgements

We thank Sid Kroker for providing the samples and are appreciative to Shannon Coyston and Margaret Kapinga for laboratory assistance.

| Provenience | Inventory Number | Quantity | Whole | Fragment | Charred | Uncharred | Provisional identification (see below for key to numbers) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 21K52C3 | 3337 | 1 | x | | | x | x | | | | | | | |
| 21K51E5 | 3125 | 4 | x | | | x | x | | | | | | | |
| 21K51K6 | 2983 | 1 | x | | | x | x | | | | | | | |
| 21K51G4 | 1995 | 1 | | x | | x | x | | | | | | | |
| 21K51H4 | 2068 | 1 | | x | | x | x | | | | | | | |
| 21K55D5 | 2494 | 1 | x | | | x | x | | | | | | | |
| 21K56J7 | 2342 | 1 | x | | | x | x | | | | | | | |
| 21K54D3 | 2122 | 2 | | x | | x | x | | | | | | | |
| 21K56J7 | 2343 | 3 | | x | | x | x | | | | | | | |
| 21K55A4 | 2687 | 2 | | x | | x | x | | | | | | | |
| 21K55J3 | 2777 | 1 | x | | | x | x | | | | | | | |
| 21K56D7 | 3248 | 1 | | x | | x | x | | | | | | | |
| 21K54A4 | 3250 | 1 | | x | | x | x | | | | | | | |
| 21K54K3 | 1220 | 1 | | x | | x | x | | | | | | | |
| 21K52K3 | 672 | 1 | | x | | x | x | | | | | | | |
| 21K51K3 | 336 | 1 | x | | | x | x | | | | | | | |
| 21K56J6 | 3493 | 1 | | x | | x | x | | | | | | | |
| 21K51E4 | 3363 | 4 | 2 | 2 | | x | x | | | | | | | |
| 21K56G5 | 3187 | 1 | | x | | x | x | | | | | | | |
| 21K56B5 | 2429 | 2 | x | | | x | x | | | | | | | |
| 21K56K6 | 1365 | 3 | 2 | 1 | | x | x | | | | | | | |
| 21K55H3 | 1348 | 1 | x | | | x | x | | | | | | | |
| 21K56D4 | 1116 | 1 | x | | | x | x | | | | | | | |
| 21K53H2 | 1038 | 1 | x | | | x | x | | | | | | | |
| 21K51K3 | 1943 | 1 | | x | | x | x | | | | | | | |
| 21K51C1 | 1241 | 1 | x | | | x | x | | | | | | | |
| 21K56B4 | 533 | 2 | | x | | x | x | | | | | | | |
| 21K56K6 | 1364 | 1 | | x | x | | | | | x | | | | |
| 21K54G13 | 2918 | 4 | | x | x | | | | x | | | | | |
| 21K56E6 | 3205 | 1 | | x | x | | | | x | | | | | |
| 21K56K6 | 1363 | 1 | | x | x | | | | x | | | | | |
| 21K55A4 | 2685 | 1 | | x | x | | | x[9] | | | | | | |
| 21K51K6 | 2982 | 1 | x | | | x | | | | | | | | x |
| 21K51H9 | 2067 | 1 | x | | | x | | | | | x | | | |
| 21K54C4 | 610 | 1 | | x | | x | | | | | | | | x |
| 21K56G5 | 3474 | 1 | | x | | x | | | | | | | | x |

Table 13: Provisional Identification of Seeds from The Forks 1989 Excavation

| Provenience | Inventory Number | Quantity | Whole | Fragment | Charred | Uncharred | Provisional identification (see below for key to numbers) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 21K56D3 | 1190 | 1 | x | | x | | | | | | | | | x |
| 21K51H2 | 3056 | 1 | x | | | x | | | | | | x | | |
| 21K52C3 | 3338 | 5 | 1 | 4 | x | | | | | | | | | x |
| 21K55H4 | 1642 | 1 | x | | | x | | | | | x | | | |
| 21K56H5 | 2380 | 1 | x | | | x | | | | | x | | | |
| 21K55A4 | 2686 | 2 | x | | | x | | | | | x | | | |
| 21K55G2 | 2206 | 2 | x | | | x | | | | | x | | | |
| 21K51E1 | 2043 | 1 | x | | | x | | | | | x | | | |
| 21K51J5 | 1934 | 1 | x | | | x | | | | | x | | | |
| 21K54D3 | 2121 | 1 | x | | | x | | | | | x | | | |
| 21K55F4 | 1777 | 2 | x | | | x | | | | | x | | | |
| 21K51K3 | 1935 | 1 | x | | | x | | | | | x | | | |
| 21K55J3 | 3288 | 1 | x | | | x | | | | | x | | | |
| 21K56G6 | 3281 | 1 | x | | | x | | | | | x | | | |
| 21K53C3 | 1783 | 1 | x | | | x | | | | | | | x | |



Key to identifications:
1 – *Prunus* cf. *pensylvanica*
2 – *Corylus* sp.
3 – *Corylus americana*
4 – cf. *Prunus* sp.
5 – *Convolvulus sepium*
6 – *Vicia* cf. *cracca*
7 – cf. Gramineae
8 – Unidentified

Notes:
9 – Badly charred

# APPENDIX C

## Scientific Names of Identified Flora and Fauna

## Scientific And Common Names Of Recovered Flora And Fauna

### ANIMALS

| | |
|---|---|
| **Mammal** | ***Mammalia*** |
| Rodents | *Rodentia* |
| Beaver | *Castor canadensis* |
| Muskrat | *Ondatra zibethicus* |
| Rabbits | *Lagomorpha* |
| Jack rabbit | *Lepus sp.* |
| Carnivore | *Carnivora* |
| Wolf/Dog family | *Canidae* |
| Weasel family | *Mustelidae* |
| Skunk | *Mephitis mephitis* |
| Single-hooved Animals | *Perissodactyla* |
| Horse | *Equus caballus* |
| Cloven-hooved Animals | *Artiodactyla* |
| Cow/Bison/Moose/Elk group | *Artiodactyla* (large) |
| Pig/Sheep/Goat group | *Artiodactyla* (small) |
| Cow/Bison family | *Bovidae* |
| Cow | *Bos taurus* |
| Bison | *Bison bison* |
| **Bird** | ***Aves*** |
| Duck/Goose family | *Anatidae* |
| Duck sub-family | *Anatinae* |
| Swan | *Olor sp.* |
| Crow/Raven family | *Corvidae* |
| Crow | *Corvus brachyrhynchos* |
| Hawk family | *Accipitridae* |
| **Fish** | |
| Sturgeon | *Acipenser fulvescens* |
| Freshwater Drum | *Aplodinotus grunniens* |
| Catfish/Bullhead | *Ictalurus sp.* |
| Walleye/Sauger | *Stiziostedion sp.* |
| Mooneye/Goldeye | *Hiodon sp.* |
| Sucker family | *Catostomidae* |

| | |
|---|---|
| **Amphibian** | *Salientia* |
| Frog/Toad | |
| **Reptile** | ***Reptilia*** |
| Turtle | *Chelonia* |
| **Gastropod (Snail)** | ***Gastropoda*** |
| **Shellfish** | ***Pelecypoda*** |
| Freshwater Clam | *Unionidae* |
| Pig-Toe | *Fusconaia flava* |
| Pink Heel-splitter | *Proptera alata* |
| Fingernail/Pea Clam | *Sphaeriidae* |
| Cowrie | *Cypraeidae* |

**PLANTS**

| | |
|---|---|
| Pin Cherry | *Prunus pensylvanica* |
| Plum | *Prunus sp.* |
| Hazelnut | *Corylus sp.* |
| American Hazelnut | *Corylus americana* |
| Bindweed (Wild Morning-glory) | *Convolvulus sepium* |
| Tufted Vetch | *Vicia cracca* |
| Grass family | *Gramineae* |